



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

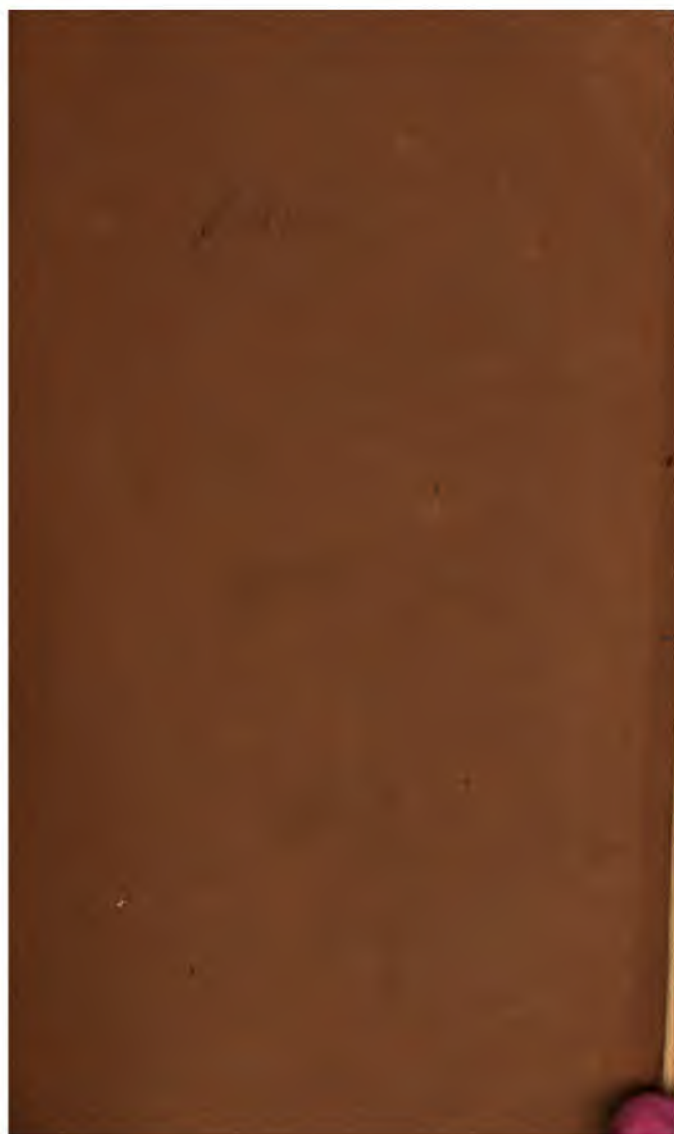
We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

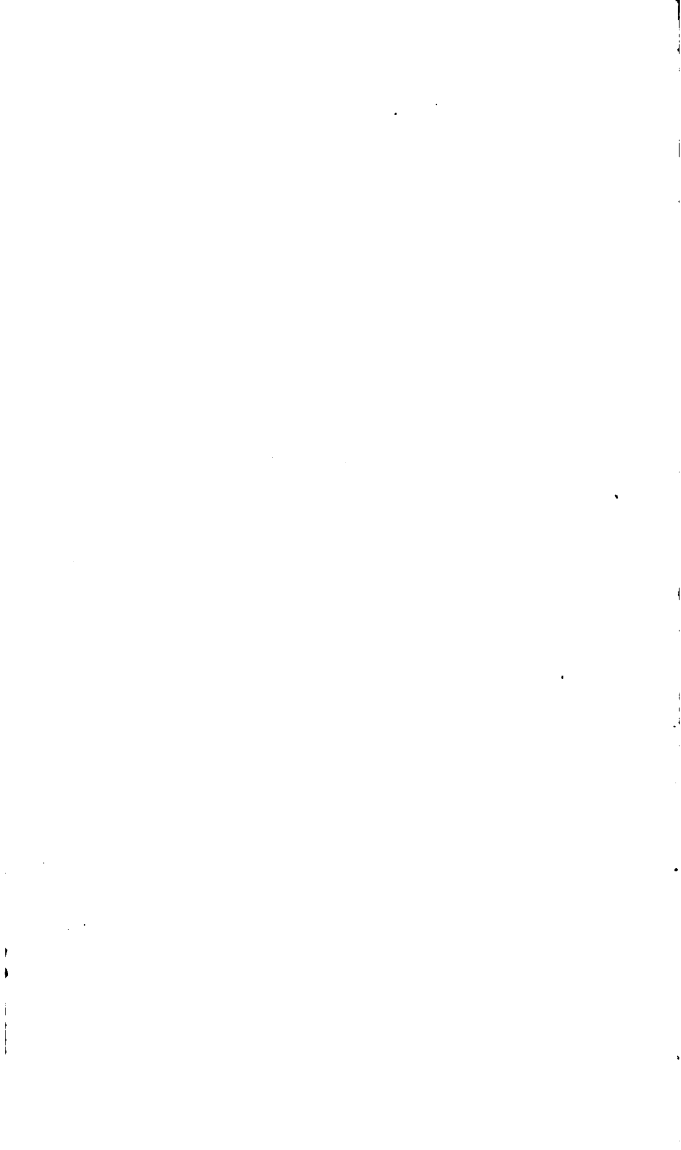
RC 10680
A-24



THE
(SCHOOL LIBRARY)
PUBLISHED UNDER THE SANCTION
of the
(Board of Education)
OF THE STATE OF
MASSACHUSETTS.
JUVENILE SERIES.



ROBUST:
MRS. E. C. APEN, LYON, & WEBB.



THE
SCHOOL LIBRARY.

PUBLISHED UNDER THE SANCTION OF THE BOARD OF EDUCATION OF
THE STATE OF MASSACHUSETTS.

JUVENILE SERIES.

VOL. IV.

JUVENILE BUDGET OPENED.

SELECTIONS FROM THE WRITINGS
OF
DOCTOR JOHN AIKIN,
BY MRS. S. J. HALE.

BOSTON:
MARSH, CAPEN, LYON, AND WEBB.
1840.

**THIS VOLUME IS SANCTIONED, BY THE BOARD OF
EDUCATION OF THE STATE OF MASSACHUSETTS, AS
ONE OF THE SERIES, ENTITLED, 'THE SCHOOL LI-
BRARY,' PUBLISHED BY MARSH, CAPEN, LYON, AND
WEBB.**

**EDWARD EVERETT,
GEORGE HULL,
EMERSON DAVIS,
EDMUND DWIGHT,
GEORGE PUTNAM,
ROBERT RANTOUL, JR
THOMAS ROBBINS,
JARED SPARKS,
CHARLES HUDSON,
GEORGE N. BRIGGS.**

THE
JUVENILE BUDGET
OPENED:

BEING SELECTIONS FROM THE WRITINGS OF

DOCTOR JOHN AIKIN,

WITH A SKETCH OF HIS LIFE.

BY MRS. SARAH J. HALE,

AUTHOR OF 'TRAITS OF AMERICAN LIFE,' 'LADIES' WREATH,' ETC.

"Just as the twig is bent, the tree's inclined."

BOSTON:
MARSH, CAPEN, LYON, AND WEBB.
1840.

KC 10680



Entered according to Act of Congress, in the year 1840, by
MARSH, CAPEN, LYON, AND WEBB,
in the Clerk's Office of the District Court of Massachusetts.

EDUCATION PRESS.

PREFACE.

THIS volume is a selection from the contributions of Dr. Aikin to that very popular work, 'Evenings at Home.' The reasons for not reprinting the whole, are these—Mrs. Barbauld, sister of the Doctor, contributed a share of those volumes, but as her part was not designated, the reader could not tell to which author he was indebted for his pleasure and improvement.

It is an advantage to the young, to know the character of their teachers ; for those who write expressly for children, are often their most efficient teachers. By separating the productions of Doctor Aikin from those of his sister, and giving a short sketch of his life, he could be brought familiarly as a friend before the minds of his readers.

Doctor Aikin deserves this distinction. His example is an excellent one to set before our American youth. This cannot be said of all those who have written wisely ; and yet it should be an important consideration in the merit of a book we put into the hands of children.

Besides the high character for pure morals, benevolence, and industry which the Doctor, during his whole life, sustained, his devotion to those principles of freedom, which are imbodyed in our institutions, makes his writings particularly suited to our age and country. He was, in sentiment, a republican. These free principles he embraced during the war of the American Revolution. From that time, till his death, he was a firm supporter of civil liberty; and in his writings for children, he has imbodyed and enforced all those virtues and qualities which best fit men to sustain and enjoy freedom. His whole aim seems to be directed to the improvement and happiness of mankind. None of the prejudices of rank, birth, and station, so apparent in most English authors, and so very injurious to the minds of American youth, are inculcated in his stories and precepts.

We think this volume will be found, in its adaptation and influence, an excellent one for the 'SCHOOL LIBRARY.' Its morality is pure as the religion of Christ, and its worldly precepts inculcate that progress in every improvement of character and condition, which must be carried out, before men will become really Christians.

Boston, September, 1839.

CONTENTS.

	Page
BIOGRAPHICAL SKETCH OF DR. AIKIN,	9
Order and Disorder,	13
Why an Apple Falls,	18
Nature and Education,	23
A Tea Lecture,	25
Eyes and no Eyes ; or, the Art of Seeing,	31
Why the Earth moves round the Sun,	41
On the Pine and Fir Tree,	47
Tit for Tat,	55
On Wine and Spirits,	57
The Boy without a Genius,	66
Half a Crown's Worth,	72
The Rat with a Bell,	75
Trial,	77
The Leguminous Plants,	88
On Metals, Part I.,	95
On Metals, Part II.,	107
What Animals are made for,	121
On Earths and Stones,	127
The Compound-Flowered Plants,	146
Travellers' Wonders,	152
A Globe Lecture,	158
The Cruciform Plants,	171
The Colonists,	179
The Goldfinch and Linnet,	185

	Page
Humble Life,	187
On Emblems,	195
Ledyard's Praise of Women,	204
Walking the Streets,	205
Presence of Mind,	207
Earth and her Children,	216
Great Men,	218
On Man,	224
The Little Philosopher,	231
Flying and Swimming,	235
The Swallow and Tortoise,	238
Perseverance against Fortune,	240
The Birth-day Gift,	257
Things by their Right Names,	259
Good Company,	261
The Dog balked of his Dinner,	265
The Umbelliferous Plants,	268
Envy and Emulation,	274
Wise Men,	278
GLOSSARY.	284

TO THE YOUNG READER.

I WILL tell you, my little friend, before you begin this book, that it was written by an Englishman, for English children. You must, therefore, expect to find the scenes mostly laid in England, and English character and manners described.

While you read these descriptions, you may compare them with what you see around you, in your own country ; this comparison will help you to understand how we Americans differ, in our thoughts and feelings, from English people.

You know we speak the English language, and our ancestors, the Pilgrims, were from England ; yet living in this new country, and under a different form of government, has made us Americans, very different from the people who live in England. These things you must try to understand.

You will find that when money is mentioned, it is in English currency—pounds, shillings, pence, and farthings. Our currency, you recollect, is

eagles, dollars, dimes, cents, and mills. At the end of the book, you will find explanations of some difficult words and phrases, and also a table to show you the value of English money, compared with that of our own country.

BIOGRAPHICAL SKETCH

OF

JOHN AIKIN.

JOHN AIKIN was an only son. His father, Rev. John Aikin, was teacher of a small academy in Kibworth, Leicestershire, England, where John was born, January 15th, 1747.

He had one sister, Anna Lætitia, afterwards Mrs. Barbauld. The brother and sister were educated by their father, and were very fond of each other. This warm affection continued during their whole lives, and was a source of much happiness and mutual improvement.

His parents intended John for a clergyman; but his voice was weak, and, on the whole, he preferred the medical profession. During the time of his studies, he often indulged himself in writing poems and essays; the first juvenile productions which he ventured in print, were sent to a London newspaper. To his sister, who was always his confidant, he thus described them:—

“I look upon these little essays as the first flights of young birds, which give them boldness

and skill to take hereafter a larger circle. I have a strong notion of becoming an author, some time or other." He was then about eighteen.

After the completion of his medical studies, which he went through honorably, he settled for a time at the city of Chester ; he afterwards removed to Warrington in Lancashire, (where his parents then resided,) and there established himself. Soon after, when he was about twenty-five, he married Miss Martha Jennings, a young lady of great worth of character, and a highly-cultivated mind. Their domestic life was very happy, and all his literary plans were encouraged by his wife, as they had been by his sister.

Mr. Aikin (he had not then taken the degree of Doctor, so was not called by the title) now devoted a great part of his leisure to writing, and among his other productions, the *Calendar of Nature* was quite popular. He was very fond of botany as a study, or rather amusement ; and it is a delightful study for the young. Mr. Aikin recommended botany to his friends, because it affords such a pleasant resource in our walks and rides. He thus writes to a friend :—

"When you ride next over the hill above Broughton, be so good as to alight and search for a little *Campanula*, a very small plant with a blue flower, which I found plentifully growing there. And when you are at Ruthven, visit the castle, where, among several uncommon plants, you will find plentifully growing out of the walls, an odd-smelling aromatic plant, of the mint or basil kind,

with little red flowers in whorls, which I want much, especially as I do n't know what it is."

It was by taking such notice of every thing that fell in his way, that he acquired much of that knowledge, which enabled him to describe plants and animals so intelligibly, in his writings for children. He studied in the grand and beautiful book of Nature, which is always open to all;—the poorest and lowliest may read it. Do you love flowers, my young friends? Then you will have a taste for botany; and, in mature age, you will recollect with pleasure the places where you found little blue and red blossoms.

Mr. Aikin was a friend to the poor. He always attended them gratuitously in sickness, and he wrote and labored on their behalf. He assisted, by his sympathy and his pen, the benevolent Howard, in the efforts he was making to reform the prisons in England; and after the death of that good and great man, he wrote his biography.

It was not till Mr. Aikin was about thirty-seven, that he took his Doctor's degree. For this purpose, he made a journey to Leyden, in Holland, the seat of a famous medical institution. He gives in his Journal a very amusing description of his tour, and the ceremony of taking his degree; which, he said, was only taking a "Latin oath," when he was formally declared a "Doctor," &c. After this he resided a while at Yarmouth; but finally, in the spring of 1792, he established himself as a physician in London. Here he continued to reside, devoting his time more to litera-

ture than to his medical profession. He was editor of several periodicals, and wrote a great number and variety of books; but none that has been so much read and so widely circulated as his 'Evenings at Home,' from which the present volume is selected. He wrote these stories and fables while engaged in educating his own children; and all the pieces were read over in his own family, before they were sent to the printer. It must have been a very delightful thing to his children, to sit round the pleasant fire of a winter evening, and hear their father read a new story he had just written. But these are now just as new to those children who see them for the first time in this edition, which has been prepared expressly for American youth. All who read it, must, I think, feel reverence and love for the amiable author; and should the precepts and examples of truth, honesty, industry, and kindness, which he has set forth in this book be followed, they will make the readers happier as well as wiser. Though dead, he yet speaketh; and his writings, like his life, are filled with that spirit of doing good to others, which is sure to be in all who are good themselves. These are the truly great ones of the earth, whose names and memory should be held in grateful and universal respect. Dr. Aikin died in December, 1822, aged seventy-five years.

ORDER AND DISORDER.

A FAIRY TALE.

JULIET was a clever, well-disposed girl, but apt to be heedless. She could do her lessons very well ; but commonly as much time was taken up in getting her things together, as in doing what she was set about. If she was to work, there was generally the housewife to seek in one place, and the thread-papers in another. The scissors were left in her pockets up stairs, and the thimble was rolling about the floor. In writing, the copybook was generally missing, the ink dried up, and the pens, new and old, all tumbled about the cupboard. The slate and slate-pencil were never found together. In making her exercises, the English dictionary always came to hand instead of the French grammar ; and when she was to read a chapter, she usually got hold of Robinson Crusoe, or the World Displayed, instead of the Testament.

Juliet's mamma was almost tired of teaching her ; so she sent her to make a visit to an old lady in the country, a very good woman, but rather strict with young folks. Here she was shut up, in a room above stairs, by herself, after breakfast, every day, till she had quite finished the tasks set her. This house was one of the very few that are

still haunted with fairies. One of these, whose name was *Disorder*, took a pleasure in plaguing poor Juliet. She was a frightful figure to look at; being crooked and squint-eyed, with her hair hanging about her face, and her dress put on all awry, and full of rents and tatters. She prevailed on the old lady to let her set Juliet her tasks; so one morning, she came up, with a workbag full of threads of silk, of all sorts of colors, mixed and entangled together, and a flower very nicely worked, to copy. It was a pancy, and the gradual melting of its hues into one another, was imitated with great accuracy and beauty. "Here, Miss," said she, "my mistress has sent you a piece of work to do, and she insists upon having it done, before you come down to dinner. You will find all the materials, in this bag."

Juliet took the flower and the bag, and turned out all the silks upon the table. She slowly pulled out a red, and a purple, and a blue, and a yellow, and at length fixed upon one to begin working with. After taking two or three stitches, and looking at her model, she found another shade was wanted. This was to be hunted out from the bunch, and a long while it took her to find it. It was soon necessary to change it for another. Juliet saw that in going on at this rate it would take days, instead of hours, to work the flower, so she laid down the needle and fell a crying. After this had continued some time, she was startled at the sound of somewhat stamping on the floor; and taking her handkerchief from her eyes, she spied

a neat diminutive female figure advancing towards her. She was as upright as an arrow, and had not so much as a hair out of its place, or the least article of her dress ruffled or discomposed. When she came up to Juliet, "My dear," said she, "I heard your crying, and knowing you to be a good girl in the main, I am come to your assistance. My name is *Order*; your mamma is well acquainted with me, though this is the first time you ever saw me. But I hope we shall know one another better for the future." She then jumped upon the table, and with a wand gave a tap upon the heap of entangled silk. Immediately the threads separated, and arranged themselves in a long row consisting of little skeins, in which all of the same color were collected together, those approaching nearest in shade being placed next each other. This done, she disappeared. Juliet, as soon as her surprise was over, resumed her work, and found it go on with ease and pleasure. She finished the flower by dinner-time; and obtained great praise for the neatness of the execution.

The next day, the ill-natured fairy came up with a great book under her arm. "This," said she, "is my mistress's house-book, and she says you must draw out, against dinner, an exact account of what it has cost her, last year, in all the articles of housekeeping, including clothes, rent, taxes, wages, and the like. You must state separately the amount of every article, under the heads of baker, butcher, milliner, shoemaker, and so forth, taking special care not to miss a single thing enter-

ed down in the book. Here is a quire of paper and a parcel of pens." So saying, with a malicious grin, she left her.

Juliet turned pale at the very thought of the task she had to perform. She opened the great book and saw all the pages closely written, but in the most confused manner possible. Here was "Paid Mr. Crusty for a week's bread and baking, so much." Then, "Paid Mr. Pinchtoe for shoes, so much." "Paid half a year's rent, so much." Then came a butcher's bill, succeeded by a milliner's, and that by a tallow-chandler's. "What shall I do?" cried poor Juliet; "where am I to begin, and how can I possibly pick out all these things? Was ever such a tedious perplexing task? O! that my good little creature were here again with her wand!"

She had but just uttered the words, when the fairy *Order* stood before her. "Do n't be startled, my dear," said she, "I knew your wish, and made haste to comply with it. Let me see your book." She turned over a few leaves, and then cried, "I see my cross-grained sister has played you a trick. She has brought you the *day-book*, instead of the *leger*; but I will set the matter to rights, instantly." She vanished, and presently returned with another book, in which she showed Juliet every one of the articles required, standing at the tops of the pages, and all the particulars entered under them from the day-book; so that there was nothing for her to do but to cast up the sums, and copy out the heads, with their amount, in single lines. As Juliet was

a ready accountant, she was not long in finishing the business, and produced her account, neatly written on one sheet of paper, at dinner.

The next day, Juliet's tormentor brought her up a large box full of letters, stamped upon small bits of ivory, capitals and common letters of all sorts, but jumbled together promiscuously, as if they had been shaken in a bag. "Now, Miss," said she, "before you come down to dinner, you must exactly copy out this poem, in those ivory letters, placing them, line by line, on the floor of your room."

Juliet thought, at first, that this task would be pretty sport enough; but when she set about it, she found such trouble in hunting out the letters she wanted, every one seeming to come to hand before the right one, that she proceeded very slowly; and the poem being a long one, it was plain that night would come before it was finished. Sitting down, and crying for her kind friend, was therefore her only resource.

Order was not far distant; for, indeed, she had been watching her proceedings all the while. She made herself visible, and giving a tap on the letters with her wand, they immediately arranged themselves alphabetically in little double heaps, the small in one, and the great in the other. After this operation, Juliet's task went on with such expedition, that she called up the old lady, an hour before dinner, to be witness to its completion.

The good lady kissed her, and told her, that as she hoped she was now made fully sensible of the

benefits of order, and the inconveniences of disorder, she would not confine her any longer to work by herself at set tasks, but she should come and sit with her. Juliet took such pains to please her, by doing every thing with the greatest neatness and regularity, and reforming all her careless habits, that, when she was sent back to her mother, the following presents were made her, in order constantly to remind her of the beauty and advantage of order.

A cabinet of English coins, in which all the gold and silver money of the English kings was arranged in the order of their reigns.

A set of plaster casts of the Roman emperors.

A cabinet of beautiful shells, displayed according to the most approved system.

A very complete box of water-colors, and another of crayons, sorted in all the shades of the primary colors.

And a very nice housewife, with all the implements belonging to a seamstress, and good store of the best needles in sizes.

WHY AN APPLE FALLS.

PAPA, (said Lucy,) I have been reading to-day that Sir Isaac Newton was led to make some of his great discoveries by seeing an apple fall from a tree. What was there extraordinary in that ?

P. There was nothing extraordinary ; but it happened to catch his attention and set him a thinking.

L. And what did he think about ?

P. He thought by what means the apple was brought to the ground.

L. Why, I could have told him that ; because the stalk gave way and there was nothing to support it.

P. And what then ?

L. Why then, it must fall, you know.

P. But why must it fall ?—that is the point.

L. Because it could not help it.

P. But why could it not help it ?

L. I don't know ; that is an odd question. Because there was nothing to keep it up.

P. Suppose there was not ; does it follow that it must come to the ground ?

L. Yes, surely !

P. Is an apple animate or inanimate ?

L. Inanimate to be sure.

P. And can inanimate things move of themselves ?

L. No, I think not ; but the apple falls, because it is forced to fall.

P. Right ! Some force, out of itself, acts upon it, otherwise it would remain for ever where it was, notwithstanding it were loosened from the tree.

L. Would it ?

P. Undoubtedly : for there are only two ways in which it could be moved ; by its own power

of motion, or the power of somewhat else moving it. Now, the first, you acknowledge it has not ; the cause of its motion, must therefore be the second. And what that is, was the subject of the philosopher's inquiry.

L. But every thing falls to the ground, as well as an apple, when there is nothing to keep it up.

P. True ; there must therefore be a universal cause of this tendency to fall.

L. And what is it ?

P. Why, if things out of earth cannot move themselves to it, there can be no other cause of their coming together, than that the earth pulls them.

L. But the earth is no more animate than they are ; so how can it pull ?

P. Well objected ! This will bring us to the point. Sir Isaac Newton, after deep meditation, discovered that there was a law in Nature, called *attraction*, by virtue of which, every particle of matter, that is, every thing of which the world is composed, draws towards it, every other particle of matter, with a force proportioned to its size and distance. Lay two marbles on the table. They have a tendency to come together, and if there were nothing else in the world, they would come together ; but they are also attracted by the table, by the ground, and by every thing besides in the room ; and these different attractions pull against each other. Now, the globe of the earth is a prodigious mass of matter, to which nothing near it, can bear any comparison. It draws, therefore,

with mighty force, every thing within its reach, which is the cause of their falling ; and this is called the *gravitation* of bodies, or what gives them *weight*. When I lift up any thing, I act contrary to this force, for which reason, it seems *heavy* to me ; and the heavier, the more matter it contains, since that increases the attraction of the earth for it. Do you understand this ?

L. I think I do. It is like a loadstone drawing a needle.

P. Yes ; that is an attraction, but of a particular kind, only taking place between the magnet and iron. But gravitation, or the attraction of the earth, acts upon every thing alike.

L. Then it is pulling you and me at this moment ?

P. It is.

D. But why do not we stick to the ground then ?

P. Because, as we are alive, we have a power of self-motion, which can to a certain degree overcome the attraction of the earth. But the reason you cannot jump a mile high as well as a foot, is this attraction, which brings you down again, after the force of your jump is spent.

L. I think, then, I begin to understand what I have heard, of people living on the other side of the world. I believe they are called *Antipodes*, who have their feet turned towards ours, and their heads in the air. I used to wonder how it could be that they did not fall off ; but I suppose the earth pulls them to it.

P. Very true. And whither should they fall ?
What have they over their heads ?

L. I don't know ; sky, I suppose.

P. They have. This earth is a vast ball, hung in the air, and continually spinning round, and that is the cause why the sun and stars seem to rise and set. At noon, we have the sun over our heads, when the Antipodes have the stars over theirs ; and at midnight, the stars are over our heads, and the sun over theirs. So whither should they fall, more than we ? to the stars or the sun ?

L. But we are up, and they are down.

P. What is up, but *from* the earth and *towards* the sky ? Their feet touch the earth, and their heads point to the sky, as well as ours ; and we are under their feet, as much as they are under ours. If a hole were dug quite through the earth, what would you see through it ?

L. Sky, with the sun or the stars ; and now I see the whole matter plainly. But pray, what supports the earth in the air ?

P. Why, where should it go ?

L. I don't know ; I suppose where there was most to draw it. I have heard that the sun is a great many times bigger than the earth. Would it not go to that ?

P. You have thought very justly on the matter, I perceive. But I shall take another opportunity of showing you how this is, and why the earth does not fall into the sun, of which, I confess, there *seems* to be some danger. Meanwhile, think how far the falling of an apple has carried us !

L. To the Antipodes, and I know not where.

P. You may see, from thence, what use may be made of the commonest fact, by a thinking mind.

NATURE AND EDUCATION.

A FABLE.

NATURE and EDUCATION were one day walking together, through a nursery of trees. See, says *Nature*, how straight and fine those firs grow—that is my doing? But as to those oaks, they are all crooked and stunted: that, my good sister, is your fault. You have planted them too close, and not pruned them properly. Nay, sister, said *Education*, I am sure I have taken all possible pains about them; but you gave me bad acorns, so how should they ever make fine trees?

The dispute grew warm; and at length, instead of blaming one another for negligence, they began to boast of their own powers, and to challenge each other to a contest for the superiority. It was agreed that each should adopt a favorite, and rear it up in spite of all the ill offices of her opponent. *Nature* fixed upon a vigorous young Weymouth pine, the parent of which had grown to be the mainmast of a man of war. Do what you will to this plant, said she to her sister, I am resolved to push it up as straight as an arrow. *Education*

took under her care, a crab-tree. This, said she, I will rear to be at least as valuable as your pine.

Both went to work. While *Nature* was feeding her pine with plenty of wholesome juices, *Education* passed a strong rope round its top, and pulling it downwards with all her force, fastened it to the trunk of a neighboring oak. The pine labored to ascend, but not being able to surmount the obstacle, it pushed out to one side, and presently became bent like a bow. Still, such was its vigor, that its top, after descending as low as its branches, made a new shoot upwards ; but its beauty and usefulness were quite destroyed.

The crab-tree cost *Education* a world of pains. She pruned and pruned, and endeavored to bring it into shape, but in vain. *Nature* thrust out a bough this way, and a knot that way, and would not push a single leading shoot upwards. The trunk was, indeed, kept tolerably straight by constant efforts ; but the head grew awry and ill-fashioned, and made a scrubby figure. At length, *Education*, despairing of making a sightly plant of it, ingrafted the stock with an apple, and brought it to bear tolerable fruit.

At the end of the experiment, the sisters met to compare their respective success. Ah, sister ! said *Nature*, I see it is in your power to spoil the best of my works. Ah, sister ! said *Education*, it is a hard matter to contend against you ; however, something may be done by taking pains enough.

A TEA LECTURE.

Tutor—Pupil.

TUTOR. Come, the tea is ready. Lay by your book, and let us talk a little. You have assisted in tea-making, a great many times ; and yet I dare say you never considered what kind of operation it was.

Pupil. An operation of cookery, is it not ?

Tut. You may call it so ; but it is properly an operation of *chemistry*.

Pup. Of chemistry ? I thought that had been a very deep sort of a business.

Tut. O ! there are many things in common life, that belong to the deepest of sciences. Making tea is the chemical operation called *infusion*, which is, when a hot liquor is poured upon a substance in order to extract something from it. The water, you see, extracts from the tea-leaves their color, taste, and flavor.

Pup. Would not cold water do the same ?

Tut. It would, but more slowly. Heat assists almost all liquors, in their power of extracting the virtues of herbs and other substances. Thus good housewives formerly used to boil their tea, in order to get all the goodness from it, as completely as possible. The greater heat and agitation of boiling, makes it act more powerfully. The liquor, in which a substance has been boiled, is called a *decoction* of that substance.

Pup. Then we had a decoction of mutton, at dinner, to-day.

Tut. We had ; broth is a decoction, and so are gruel and barley-water. But when any thing is put to steep in a cold liquor, it is called *maceration*. The ingredients of which ink is made, are *macerated*. In all these cases, you see, the whole substance does not mix with the liquor, but only part of it. The reason is, that part of it is *soluble* in the liquor, and part not.

Pup. What is the meaning of soluble ?

Tut. *Solution*, is when a solid, put into a fluid, entirely disappears in it, leaving the liquor clear. Thus, when I throw this lump of sugar into my tea, you see it gradually waste away, till it is all gone ; and then I can taste it in every single drop of my tea ; but the tea is clear as before.

Pup. Salt would do the same.

Tut. It would. But if I were to throw in a lump of chalk, it would lie undissolved at the bottom.

Pup. But it would make the water white.

Tut. True, while it was stirred ; and then it would be a *diffusion*. But while the chalk was thus mixed with the liquor, it would lose its transparency, and not recover it again, till, by standing, the chalk had all subsided, and left the liquor as it was before.

Pup. How is the cream mixed with the tea ?

Tut. Why, that is only *diffused*, for it takes away the transparency of the tea. But the particles of cream being finer and lighter than those

of chalk; it remains longer united with the liquor. However, in time, the cream would separate too, and rise to the top, leaving the tea clear. Now, suppose you had a mixture of sugar, salt, chalk, and tea-leaves, and were to throw it into water, either hot or cold; what would be the effect?

Pup. The sugar and salt would melt and disappear. The tea-leaves would yield their color and taste. The chalk,—I do not know what would become of that.

Tut. Why, if the mixture were stirred, the chalk would be diffused through it, and make it *turbid* or muddy; but on standing, it would leave it unchanged.

Pup. Then there would remain at bottom the chalk and tea-leaves?

Tut. Yes. The clear liquor would contain in *solution*, salt, sugar, and those particles of the tea, in which its color and taste consisted: the remainder of the tea, and the chalk, would lie undissolved.

Pup. Then I suppose tea-leaves, after the tea is made, are lighter than at first.

Tut. Undoubtedly. If taken out, and dried, they would be found to have lost part of their weight, and the water would have gained it. Sometimes, however it is an extremely small portion of a substance which is soluble, but it is that, in which its most remarkable qualities reside. Thus a small piece of spice, will communicate a strong flavor to a large quantity of liquid, with very little loss of weight.

Pup. Will all liquors dissolve the same things ?

Tut. By no means. Many dissolve in water, that will not in spirits of wine, and the contrary ; and upon this difference, many curious matters in the arts are founded. Thus, spirit-varnish is made of a solution of various gums or resins in spirits, that will not dissolve in water. Therefore, when it has been laid over any surface with a brush, and is become dry, the rain or moisture of the air will not affect it. This is the case with the beautiful varnish laid upon coaches. On the other hand, the varnish left by gum-water, could not be washed off by spirits.

Pup. I remember when I made gum-water, upon setting the cup in a warm place, it all dried away, and left the gum just as it was before. Would the same happen, if I had sugar or salt dissolved in water ?

Tut. Yes, upon exposing the solution to warmth, it would dry away, and you would get back your salt or sugar in a solid state as before.

Pup. But if I were to do so with a cup of tea, what should I get ?

Tut. Not tea-leaves, certainly ! But your question requires a little previous explanation. It is the property of heat to make most things fly off in vapor, which is called *evaporation* or *exhalation*. But this it does in very different degrees, to different substances. Some are very easily made to *evaporate* ; others very difficultly ; and others not at all, by the most violent fire we can raise. Fluids, in general, are easily *evaporable* ; but

not equally so. Spirits of wine fly off in vapor much sooner than water ; so that, if you had a mixture of the two, by applying a gentle heat, you might drive off all the spirits, and leave the water pure. Water, again, is more evaporable than oil. Some solid substances are much disposed to evaporate. Thus, smelling salts, by a little heat, may entirely be driven away in the air. But in general, solids are more fixed than fluids ; and therefore, when a solid is dissolved in a fluid, it may commonly be recovered again by evaporation. By this operation, common salt is got from sea-water and salt-springs, both artificially, and in hot countries, by the natural heat of the sun. When the water is no more than is just sufficient to dissolve the salt, it is called a *saturated solution* ; and on evaporating the water further, the salt begins to separate, forming little regular masses, called *crystals*. Sugar may be made in like manner to form crystals, and then it is sugar-candy.

Pup. But what is a sirup ?

Tut. That is, when so much sugar is dissolved, as sensibly to thicken the liquor, but not to separate from it. Well,—now to your question about tea. On exposing it to considerable heat, those fine particles in which its flavor consists, being as *volatile* or evaporable as the water, would fly off along with it ; and when the liquor came to dryness, there would only be left those particles in which its roughness and color consist. This would make what is called an *extract* of a plant.

Pup. What comes of the water that evaporates?

Tut. It ascends into the air, and unites with it. But if, in its way, it be stopped by any cold body, it is *condensed*, that is, it returns to the state of water again. Lift up the lid of the teapot, and you will see water collected on the inside of it, which is condensed steam from the hot tea beneath. Hold a spoon or knife in the way of the steam which bursts out from the spout of the teakettle, and you will find it immediately covered with drops. This operation of turning a fluid into vapor, and then condensing it, is called *distillation*. For this purpose, the vessel in which the liquor is heated is closely covered with another called the head, into which the steam rises, and is condensed. It is then drawn off, by means of a pipe, into another vessel called the receiver. In this way, all sweet-scented and aromatic liquors, are drawn from fragrant vegetables, by means of water or spirits. The fragrant part, being very volatile, rises along with the steam of the water or spirit, and remains united with it after it is condensed. Rose water, and spirit of lavender, are liquors of this kind.

Pup. Then the water collected on the inside of the teapot-lid, should have the fragrance of the tea?

Tut. It should. But unless the tea were fine, you could scarcely perceive it.

Pup. I think I have heard of making salt water fresh, by distilling.

Tut. Yes. That is an old discovery lately revived. The salt, in sea-water, being of a fixed nature, does not rise with the steam ; and therefore on condensing the steam, the water is found to be fresh. And this indeed is the method Nature employs, in raising water by exhalations from the ocean, which, collecting into clouds, is condensed in the cold regions of the air, and falls down in rain.

But our tea is done ; so we will now put an end to our chemical lecture.

Pup. But is this real chemistry ?

Tut. Yes, it is.

Pup. Why, I understand it all without any difficulty.

Tut. I intended you should.

EYES, AND NO EYES ; OR, THE ART OF SEEING.

WELL, Robert, where have you been walking, this afternoon ? (said Mr. Andrews to one of his pupils at the close of a holyday.)

R. I have been, sir, to Broom-heath, and so round by the windmill upon Campmount, and home through the meadows by the river side.

Mr. A. Well, that's a pleasant round.

R. I thought it very dull, sir ; I scarcely met with a single person. I would rather, by half, have gone along the turnpike road.

Mr. A. Why, if seeing men and horses is your object, you would, indeed, be better entertained on the high road. But did you see William?

R. We set out together, but he lagged behind in the lane; so I walked on and left him.

Mr. A. That was a pity. He would have been company for you.

R. O! he is so tedious, always stopping to look at this thing and that! I would rather walk alone. I dare say he has not got home, yet.

Mr. A. Here he comes. Well, William, where have you been?

W. O! sir, the pleasantest walk! I went all over Broom-heath, and so up to the mill at the top of the hill, and then down among the green meadows by the side of the river.

Mr. A. Why, that is just the round Robert has been taking, and he complains of its dulness, and prefers the high road.

W. I wonder at that. I am sure I hardly took a step that did not delight me; and I have brought my handkerchief full of curiosities home.

Mr. A. Suppose, then, you give us some account of what amused you so much. I fancy it will be as new to Robert as to me.

W. I will, sir. The lane leading to the heath, you know, is close and sandy, so I did not mind it much, but made the best of my way. However, I spied a curious thing enough in the hedge. It was an old crab-tree, out of which grew a great bunch of something green, quite different from the tree itself. Here is a branch of it.

Mr. A. Ah ! this is mistletoe, a plant of great fame for the use made of it by the Druids, of old, in their religious rites and incantations. It bears a very slimy white berry, of which bird-lime may be made, whence its Latin name of *Viscus*. It is one of those plants which do not grow in the ground by a root of their own, but fix themselves upon other plants ; whence they have been humorously styled *parasitical*, as being hangers-on or dependants. It was the mistletoe of the oak that the Druids particularly honored.

W. A little further on, I saw a green woodpecker fly to a tree, and run up the trunk like a cat.

Mr. A. That was to seek for insects in the bark, on which they live. They bore holes with their strong bills for that purpose, and do much damage to the trees by it.

W. What beautiful birds they are !

Mr. A. Yes ; they have been called, from their color and size, the English parrot.

W. When I got upon the open heath, how charming it was ! The air seemed so fresh, and the prospect, on every side, so free, and unbounded ! Then it was all covered with gay flowers, many of which I had never observed before. There were at least three kinds of heath, (I have them in my handkerchief, here,) and gorse, and broom, and bell-flower, and many others, of all colors, that I will beg you, presently, to tell me the names of.

Mr. A. That I will, readily.

W. I saw, too, several birds that were new to me. There was a pretty grayish one, of the size of a lark, that was hopping about some great stones; and when he flew, he showed a great deal of white above his tail.

Mr. A. That was a wheatear. They are reckoned very delicious birds to eat, and frequent the open downs, in Sussex, and some other counties, in great numbers.

W. There was a flock of lapwings upon a marshy part of the heath, that amused me much. As I came near them, some of them kept flying round and round just over my head, and crying *pewit* so distinctly, one might almost fancy they spoke. I thought I should have caught one of them, for he flew as if one of his wings was broken, and often tumbled close to the ground; but as I came near, he always made a shift to get away.

Mr. A. Ha, ha! you were finely taken in, then! This was all an artifice of the bird to entice you away from its nest; for they build upon the bare ground, and their nests would easily be observed, did not they draw off the attention of intruders, by their loud cries and counterfeit lameness.

W. I wish I had known that, for he led me a long chase, often over shoes in water. However, it was the cause of my falling in with an old man and a boy, who were cutting and piling up turf for fuel, and I had a good deal of talk with them, about the manner of preparing the turf, and the

price it sells at. They gave me, too, a creature I never saw before—a young viper, which they had just killed, together with its dam. I have seen several common snakes, but this is thicker in proportion, and of a darker color than they are.

Mr. A. True. Vipers frequent those turfy, boggy grounds, pretty much, and I have known several turf-cutters bitten by them.

W. They are very venomous, are they not ?

Mr. A. Enough so, to make their wounds painful and dangerous, though they seldom prove fatal.

W. Well ; I then took my course up to the windmill, on the mount. I climbed up the steps of the mill, in order to get a better view of the country round. What an extensive prospect ! I counted fifteen church steeples ; and I saw several gentlemen's houses, peeping out from the midst of green woods and plantations ; and I could trace the windings of the river all along the low grounds, till it was lost behind a ridge of hills. But I'll tell you what I mean to do, sir, if you will give me leave.

Mr. A. What is that ?

W. I will go again, and take with me Carey's county map, by which I shall probably be able to make out most of the places.

Mr. A. You shall have it, and I will go with you, and take my pocket spying-glass.

W. I shall be very glad of that. Well ; a thought struck me, that as the hill is called *Camp-mount*, there might probably be some remains of ditches and mounds with which I have read that

camp were surrounded. And I really believe I discovered something of that sort running round one side of the mount.

Mr. A. Very likely you might. I know antiquaries have described such remains as existing there, which some suppose to be Roman, others Danish. We will examine them, further, when we go.

W. From the hill, I went straight down to the meadows below, and walked on the side of a brook that runs into the river. It was all bordered with reeds and flags, and tall flowering plants, quite different from those I had seen on the heath. As I was getting down the bank, to reach one of them, I heard something plunge into the water, near me. It was a large water rat, and I saw it swim over to the other side, and go into its hole. There were a great many large dragon flies, all about the stream. I caught one of the finest, and have got him here, in a leaf. But how I longed to catch a bird, that I saw hovering over the water, and every now and then darting down into it! It was all over a mixture of the most beautiful green and blue, with some orange color. It was somewhat less than a thrush, and had a large head and bill, and a short tail.

Mr. A. I can tell you what that bird was ;—a kingfisher, the celebrated halcyon of the ancients, about which so many tales are told. It lives on fish, which it catches in the manner you saw. It builds in holes in the banks, is a shy, retired bird, never to be seen far from the stream where it inhabits.

W. I must try to get another sight of him, for I never saw a bird that pleased me so much. Well ; I followed this little brook, till it entered the river, and then took the path that runs along the bank. On the opposite side, I observed several little birds running along the shore, and making a piping noise. They were brown and white, and about as big as a snipe.

Mr. A. I suppose they were sandpipers, one of the numerous family of birds, that get their living by wading among the shallows, and picking up worms and insects.

W. There were a great many swallows too, sporting upon the surface of the water, that entertained me with their motions. Sometimes, they dashed into the stream : sometimes they pursued one another, so quick, that the eye could scarcely follow them. In one place, where a high steep sand bank rose directly above the river, I observed many of them go in and out of holes with which the bank was bored full.

Mr. A. Those were sandmartins, the smallest of four species of swallows. They are of a mouse color above, and white beneath. They make their nests, and bring up their young, in these holes, which run a great depth, and by their situation, are secure from all plunderers.

W. A little further, I saw a man in a boat, who was catching eels in an odd way. He had a long pole, with broad iron prongs at the end, just like Neptune's trident, only there were five, instead of three. This he pushed straight down

among the mud, in the deepest parts of the river, and fetched up the eels sticking between the prongs.

Mr. A. I have seen this method. It is called spearing of eels.

W. While I was looking at him, a heron came flying over my head, with his large flagging wings. He lit at the next turn of the river, and I crept softly behind the bank, to watch his motions. He had waded into the water as far as his long legs would carry him, and was standing with his neck drawn in, looking intently on the stream. Presently he darted his long bill as quick as lightning into the water, and drew out a fish, which he swallowed. I saw him catch another, in the same manner. He then took alarm at some noise I made, and flew away, slowly, to a wood at some distance, where he settled.

Mr. A. Probably his nest was there, for herons build upon the loftiest trees they can find, and sometimes live in society, together, like rooks. Formerly, when these birds were valued for the amusement of hawking, many gentlemen had their *heronries*, and a few are still remaining.

W. I think they are the largest wild birds we have.

Mr. A. They are of a great length and spread of wing, but their bodies are comparatively small.

W. I then turned homeward, across the meadows, where I stopt awhile to look at a large flock of starlings, which kept flying about at no great distance. I could not tell, at first, what to make

of them ; for they rose, all together, from the ground, as thick as a swarm of bees, and formed themselves into a kind of black cloud, hovering over the field. After taking a short round, they settled again, and presently rose again in the same manner. I dare say there were hundreds of them.

Mr. A. Perhaps so ; for in marshy countries, their flocks are so numerous as to break down whole acres of reeds by settling on them. This disposition of starlings to fly in close swarms was remarked even by Homer, who compares the foe flying from one of his heroes, to a *cloud* of stares* retiring dismayed at the approach of the hawk.

W. After I had left the meadows, I crossed the corn-fields, in the way to our house, and passed by a deep marl pit. Looking into it, I saw, in one of the sides, a cluster of what I took to be shells ; and upon going down, I picked up a clod of marl, which was quite full of them ; but how sea-shells could get there, I cannot imagine.

Mr. A. I do not wonder at your surprise, since many philosophers have been much perplexed to account for the same appearance. It is not uncommon to find great quantities of shells and relics of marine animals, even in the bowels of high mountains, very remote from the sea. They are certainly proofs that the earth was once in a very different state, from what it is at pres-

* [Another name for starlings.—AM. ED.]

ent ; but in what manner, and how long ago these changes took place, can only be guessed at.

W. I got to the high field, next our house, just as the sun was setting, and I stood looking at it, till it was quite lost. What a glorious sight ! The clouds were tinged purple, and crimson, and yellow, of all shades and hues, and the clear sky varied from blue to a fine green at the horizon. But how large the sun appears, just as it sets ! I think it seems twice as big, as when it is over head.

Mr. A. It does so ; and you may probably have observed the same apparent enlargement of the moon, at its rising.

W. I have ; but pray what is the reason of this ?

Mr. A. It is an optical deception, depending upon principles which I cannot well explain to you, till you know more of that branch of science. But what a number of new ideas this afternoon's walk has afforded you ! I do not wonder that you found it amusing ; it has been very instructive too. Did *you* see nothing of all these sights, *Robert* ?

R. I saw some of them, but I did not take particular notice of them.

Mr. A. Why not ?

R. I do n't know. I did not care about them, and I made the best of my way home.

Mr. A. That would have been right, if you had been sent on a message ; but as you only

walked for amusement, it would have been wiser to have sought out as many sources of it, as possible. But so it is ; one man walks through the world with his eyes open, and another with them shut ; and upon this difference, depends all the superiority of knowledge the one acquires above the other. I have known sailors, who had been in all the quarters of the world, and could tell you nothing but the signs of the tippling-houses they frequented in different parts, and the price and quality of the liquor. On the other hand, a Franklin could not cross the channel, without making some observations useful to mankind. While many a vacant thoughtless youth is whirled throughout Europe, without gaining a single idea, worth crossing a street for, the observing eye and inquiring mind, finds matter of improvement and delight in every ramble in town or country. Do *you*, then, *William*, continue to make use of your eyes ; and *you*, *Robert*, learn that eyes were given you to use.

WHY THE EARTH MOVES ROUND THE SUN.

Papa—Lucy.

PAPA. You remember, Lucy, that I explained to you, some time ago, what was the cause that things fell to the ground.

L. O yes ! It was because the ground drew them to it.

P. True. That is a consequence of the universal law in Nature, that bodies attract each other, in proportion to their bulk. So, a very small thing in the neighborhood of a very large one, always tends to go to it, if not prevented by some other power. Well, you know I told you that the sun was a ball a vast many times larger than the ball we inhabit, called the earth ; upon which, you properly asked, how then it happened that the earth did not fall into the sun.

L. And why does it not ?

P. That I am going to explain to you. You have seen your brother whirl round an ivory ball, tied to the end of a string which he held in his hand.

L. Yes, and I have done it myself, too.

P. Well, then, you felt that the ball was continually pulling, as if it tried to make its escape.

L. Yes ; and one my brother was swinging *did* make its escape, and flew through the window.

P. It did so. That was a lesson in the *centrifugal* motion, or that power, by which a body, thus whirled, continually endeavors to fly off from the centre round which it moves. This is owing to the force or impulse you give it, at setting out, as if you were going to throw it away from you. The string by which you hold it, on the contrary, is the power, which keeps the ball towards the centre, called the *centripetal* power. Thus, you see, there are two powers acting upon the ball, at

the same time ; one to make it fly off, the other to hold it in ; and the consequence is, that it moves directly according to neither, but between both ; that is, round and round. This it continues to do, while you swing it properly ; but if the string breaks, or slips off, away flies the ball ; on the other hand, if you cease to give it the whirling force, it falls towards your hand.

L. I understand all this.

P. I will give you another instance of this double force acting at the same time. Do not you remember seeing some curious feats of horsemanship ?

L. Yes.

P. One of them was, that a man, standing with one leg upon the saddle and riding full speed, threw up balls into the air, and caught them as they fell.

L. I remember it, ^{very} well.

P. Perhaps you would have expected these balls to have fallen behind him, as he was going at such a rate.

L. So I did.

P. But you saw that they fell into his hand as directly as if he had been standing quite still. That was because at the instant he threw them up, they received the motion of the horse straight forwards, as well as the upright motion that he gave them, so that they made a slanting line through the air, and came down in the same place they would have reached, if he had held them in his hand, all the while.

L. That is very curious, indeed !

P. In the same manner, you may have observed, in riding in a carriage, that if you throw any thing out of the window, it falls directly opposite, just as if the carriage was standing still, and is not left behind you.

L. I will try that, the next time I ride in one.

P. You are then to imagine the sun to be a mighty mass of matter, many thousand times larger than our earth, placed in the centre, quiet and unmoved. You are to conceive our earth, as soon as created, launched with vast force in a straight line, as if it were a bowl on a green. It would have flown off in this line for ever, through the boundless regions of space, had it not, at the same instant, received a pull from the sun, by its attraction. By the wonderful skill of the Creator, these two forces were made exactly to counterbalance each other ; so that just as much as the earth, from the original motion given it, tends to fly forwards, just so much the sun draws it to the centre ; and the consequence is, that it takes a course between the two, which is a circle round and round the sun.

L. But if the earth was set a rolling, like a bowl upon the green, I should think it would stop of itself, as the bowl does.

P. The bowl stops, because it is continually rubbing against the ground, which checks its motion ; but the ball of the earth, moves in empty space, where there is nothing to stop it.

L. But if I throw a ball through the air, it will

not go on for ever, but it will come down to the ground.

P. That is because the force with which you can throw it, is much less than the force by which it is drawn to the earth. But there is another reason, too, which is, the resistance of the air. This space all around us, and over us, is not empty space ; it is quite full of a thin transparent fluid, called air.

L. Is it ?

P. Yes. If you move your hand, quickly, through it, you will find something resisting you, though in a slight degree. And the wind, you well know, is capable of pressing against any thing with almost irresistible force ; and yet wind is nothing but a quantity of air put into violent motion. Every thing, then, that moves through the air, is continually obliged to push some of this fluid out of the way, by which means it is constantly losing part of its motion.

L. Then the earth would do the same.

P. No ; for it moves in *empty space*.

L. What ! does not it move through the air ?

P. The earth does not move *through* the air, but carries the air along with it. All the air is contained in what is called the *atmosphere*, which you may compare to a kind of mist or fog clinging all round to the ball of the earth and reaching to a certain distance above it, which has been calculated at about forty-five miles.

L. That is above the clouds then.

P. Yes ; all the clouds are within the atmo-

sphere, for they are supported by the air. Well ; this atmosphere rolls about, along with the earth, as if it were a part of it, and moves with it through the sky, which is a vast field of empty space. In this immense field, are all the stars and planets, which have also their several motions. There is nothing to stop them, but they continually go on, by means of the force that the Creator has originally impressed upon them.

L. Do not some of the stars move round the sun, as well as our earth ?

P. Yes ; those that are called *planets*. These are all subject to the same laws of motion with our earth. They are attracted by the sun as their centre, and form, along with the earth, that assemblage of worlds, which is called the *solar system*.

L. Is the moon one of them ?

P. The moon is called a *secondary* planet, because its immediate connexion is with our earth, round which it rolls, as we do round the sun. It however accompanies our earth in its journey round the sun. But I will tell you more about its motion, and about the other planets and stars, another time. It is enough, at present, if you understand what I have been describing.

L. I think I do.

ON THE PINE AND FIR TREE.

A DIALOGUE.

Tutor—George—Harry.

TUTOR. Let us sit down a while on this bench, and look about us. What a charming prospect !

Har. I admire those pleasure grounds. What beautiful clumps of trees there are in that lawn !

Geo. But what a dark gloomy wood that is at the back of the house !

Tut. It is a fir plantation ; and those trees always look dismal, in the summer, when there are so many finer greens to compare them with. But the winter, is their time for show, when other trees are stripped of their verdure.

Geo. Then they are evergreens ?

Tut. Yes ; most of the fir tribe are evergreens ; and as they are generally natives of cold, mountainous countries, they contribute greatly to cheer the wintry landscape.

Geo. You were so good, when we walked out last, to tell us a good deal about oaks. I thought it was one of the prettiest lessons I ever heard. I should be very glad if you would give us such another about firs.

Har. So should I too, I am sure.

Tut. With all my heart ; and I am pleased that you ask me. Nothing is so great an encourage-

ment to a tutor, as to find his pupils, of their own accord, seeking after useful knowledge.

Geo. And I think it is very useful to know such things as these.

Tut. Certainly it is. Well, then, you may know the pine, or fir tribe, in general, at first sight, as most of them are of a bluish-green color, and all have leaves consisting of a strong narrow pointed blade, which gives them somewhat of a stiff appearance. Then all of them bear a hard, scaly fruit of a longish or conical form.

Har. Are they what we call fir apples?

Tut. Yes; that is one of the names boys give them.

Har. We often pick them up under trees, and throw them at one another.

Geo. I have sometimes brought home my pocket full, to burn. They make a fine clear flame.

Tut. Well, do you know where the seeds lie in them?

Geo. No: have they any?

Tut. Yes; at the bottom of every scale lie two winged seeds; but when the scales open, the seeds fall out; so that you can seldom find any in those you pick up.

Har. Are the seeds good for any thing?

Tut. There is a kind of pine in the south of Europe, called the *stone pine*, the kernels of which are eaten, and said to be as sweet as an almond. And birds pick out the seeds of other sorts, though they are so well defended by the woody scales.

Har. They must have good strong bills, then.

Tut. Of this tribe of trees, a variety of species are found in different countries, and are cultivated in this. But the only kind, native in Britain, is the *wild pine*, or *Scotch fir*. Of this, there are large natural forests in the highlands of Scotland ; and the principal plantations consist of it. It is a hardy sort, fit for barren and mountainous soils, but grows slowly.

Geo. Pray what are those very tall trees that grow in two rows before the old hall in our village ?

Tut. They are the *common* or *spruce fir*, a native of Norway and other northern countries, and one of the loftiest of the tribe. But observe those trees that grow singly in the grounds opposite to us, with wide-spread branches pointing downwards, and trailing on the ground, thence gradually lessening, till the top of the tree ends almost in a point.

Har. What beautiful trees !

Tut. They are the pines, called *larches*, natives of the Alps and Appenines, and now frequently planted to decorate our gardens. These are not properly evergreens, as they shed their leaves in winter, but quickly recover them again. Then we have, besides, the *Weymouth pine*, which is the tallest species in America ; the *silver fir*, so called from the silvery hue of its foliage ; the *pinaster* ; and a tree of ancient fame, the *cedar of Lebanon*.

Geo. I suppose that is a very great tree.

Tut. It grows to a large size, but is very slow in coming to its full growth.

Geo. Are pines and firs very useful trees ?

Tut. Perhaps the most so of any. By much the greatest part of the wood used among us comes from them.

Har. What, more than from the oak ?

Tut. Yes, much more. Almost all the timber used in building houses, for floors, beams, rafters, and roofs, is fir.

Geo. Does it all grow in England ?

Tut. Scarcely any of it. [Canada,] Norway, Sweden, and Russia, are the countries from which England draws her timber, and a vast trade there is in it. You have seen timber yards ?

Geo. O yes ! several.

Tut. In them, you would observe some very long thick beams, called *balks*. Those are whole trees, only stripped of the bark, and squared. You would also see great piles of plank and boards, of different lengths and thickness. Those are called *deal*, and are brought over, ready sawn, from the countries where they grow. They are of different colors. The white are chiefly from the fir tree ; the yellow and red from the pine.

Har. I suppose there must be great forests of them, in those countries, or else they could not send us so much.

Tut. Yes. The mountains of Norway are over-run with them, enough for the supply of all Europe ; but on account of their ruggedness and want of roads, it is found impossible to get the

trees when felled, down to the seacoast, unless they grow near some river.

Geo. How do they manage them ?

Tut. They take the opportunity when the rivers are swelled with rains or melted snow, and tumble the trees into them, when they are carried down to the mouths of the rivers, where they are stopped, by a kind of pens.

Har. I should like to see them swimming down the stream.

Tut. Yes, it would be curious enough ; for in some places, these torrents roll over rocks, making steep waterfalls, down which the trees are carried headlong, and often do not rise again till they have got to a considerable distance ; and many of them are broken and torn to pieces, in the passage.

Geo. Are these woods used for any thing besides building ?

Tut. For a variety of purposes, such as boxes, trunks, packing cases, pales, wainscots, and the like. Deal is a very soft wood, easily worked, light and cheap, which makes it preferred for so many uses, though it is not very durable, and is very liable to split.

Har. Yes. I know my box is made of deal, and the lid is split all to pieces, with driving nails into it.

Geo. Are ships ever built with fir ?

Tut. It was one of the first woods made use of for naval purposes ; and in the poets you will find the words *pine* and *fir* frequently employed to sig-

nify *ship*. But as navigation has improved, the stronger and more durable woods have generally taken its place. However, in the countries where fir is very plentiful, large ships are still built with it ; for, though they last but a short time, they cost so little in proportion, that the profit of a few voyages is sufficient. Then, from the great lightness of the wood, they swim higher in the water, and consequently will bear more loading. Most of the large ships, that bring timber from Archangel, in Russia, are built of fir. As for the masts of ships, those, I have already told you, are all made of fir or pine, on account of their straightness and lightness.

Geo. Are there not some lines in Milton's *Paradise Lost* about that ?

Tut. Yes. The spear of Satan is magnified by a comparison with a lofty pine.

“ His spear, to equal which the tallest pine
Hewn on Norwegian hills, to be the mast
Of some great admiral, were but a wand.”

Har. I remember, too, that the walking staff of the giant Polyphemus was a pine.

Tut. Ay, so Virgil and Ovid tell us ; and he must have been a giant, indeed, to use such a stick. Well, so much for the wood of these trees. But I have more to say about their uses.

Har. I am glad of it.

Tut. All of the tribe contain a juice of a bitterish taste and strong fragrant smell. This, in some, is so abundant as to flow out from incisions ;

when it is called *turpentine*. The larch, in particular, yields a large quantity. Turpentine is one of the substances called *resinous* ; it is sticky, transparent, very inflammable, and will not mix with water, but will dissolve in spirits of wine.

Geo. What is it used for ?

Tut. It is used medicinally, particularly in the composition of plasters and ointments. It also is an ingredient in varnishes, cements, and the like. An oil, distilled from turpentine, is employed in medicine, and is much used by painters for mixing up their colors. What remains, after getting this oil, is common *rosin*. All these substances take fire very easily, and burn with a great flame ; and the wood of the pine has so much of this quality, when dry, that it has been used in many countries for torches.

Har. I know deal shavings burn very briskly.

Geo. Yes ; and matches are made of bits of deal dipped in brimstone.

Tut. True ; and when it was the custom to burn the bodies of the dead, as you read in Homer and other old authors, the pines and pitch-trees composed great part of the funeral pile.

Har. But what are pitch-trees ? Does pitch grow upon trees ?

Tut. I was going on to tell you about that. *Tar* is a product of the trees of this kind, especially of one species, called the pitch pine. The wood is burned in a sort of oven made in the earth, and the resinous juice sweats out, and acquires a peculiar taste and a black color from the fire.

This is *tar*. Tar, when boiled down to dryness, becomes *pitch*.

Geo. Tar and pitch are chiefly used about ships, are they not ?

Tut. They resist moisture, and therefore are of great service in preventing things from decaying, that are exposed to wet. For this reason, the cables and other ropes of ships are well soaked with tar ; and the sides of ships are covered with pitch mixed with other ingredients. Their seams, too, or the places where the planks join, are filled with tow dipped in a composition of rosin, tallow, and pitch, to keep out the water. Wood for pal-ing, for piles, coverings of roofs, and other purposes of the like nature, is often tarred over. Cisterns and casks are pitched to prevent leaking,

Har. But what are sheep tarred for, after they are sheared ?

Tut. To cure wounds and sores in their skin. For the like purposes, an ointment made with tar is often rubbed upon children's heads. Several parts of the pine are medicinal. The tops and green cones of the spruce fir are fermented with treacle ; and the liquor, called *spruce beer*, is much drunk in America.

Geo. Is it pleasant ?

Tut. Not to those who are unaccustomed to it. Well ; I have now finished my lesson, so let us walk.

Har. Shall we go through the grounds ?

Tut. Yes ; and then we will view some of the different kinds of fir and pine more closely, and

I will show you the difference of their leaves and cones, by which they are distinguished.

TIT FOR TAT.

A TALE.

A LAW there is of ancient fame,
By Nature's self in every land implanted ;
Lex Talionis is its Latin name ;
But if an English term we wanted,
Give our next neighbor but a pat,
He 'll give you back as good, and tell you—*tit for tat*.

This *tit for tat*, it seems, not man alone,
But elephants for legal justice own ;
In proof of this, a story I shall tell ye,
Imported from the famous town of Delhi.

A mighty elephant, that swelled the state
Of Aurengzebe the Great,
One day was taken by his driver
To drink and cool him in the river.
The driver on his neck was seated,
And as he rode along,
By some acquaintance in the throng,
With a ripe cocoa-nut was treated.

A cocoa-nut's a pretty fruit enough,
But guarded by a shell, both hard and tough.

The fellow tried, and tried, and tried,
Working and sweating,
Pishing and fretting,
To find out its inside,
And pick the kernel for his eating.

At length, quite out of patience grown,
"Who 'll reach me up (he cries) a stone
To break this plaguy shell?
But stay, I 've here a solid bone,
May do, perhaps, as well."
So half in earnest, half in jest,
He banged it on the forehead of his beast.

An elephant, they say, has human feeling,
And full as well as we, he knows
The difference between words and blows,
Between horse-play and civil dealing.
Use him but well, he 'll do his best,
And serve you faithfully and truly,
But insults unprovoked he can 't digest,
He studies o'er them, and repays them duly.

"To make my head an anvil, (thought the creature,
Was never, certainly, the will of Nature ;
So, master of mine, you may repent."
Then, shaking his broad ears, away he went.
The driver took him to the water,
And thought no more about the matter ;
But elephant within his mem'ry hid it ;
He *felt* the wrong ; the other only *did* it.

A week or two elapsed ; one market day,
Again the beast and driver took their way ;
Through rows of shops and booths they past,
With eatables and trinkets stored,
Till to a gard'ner's stall they came at last,
Where cocoa-nuts lay piled upon the board.
Ha ! thought the elephant, 't is now my turn
To show this method of nut-breaking ;
My friend above will like to learn,
Though at the cost of a head-aching.

Then in his curling trunk he took a heap,
And waved it o'er his neck with sudden sweep,
And on the hapless driver's sconce
He laid a blow so hard and full,
That cracked the nuts at once,
But with them cracked his scull.

Young folks, whene'er you feel inclined
To rompish sports and freedoms rough,
Bear *tit for tat* in mind,
Nor give an elephant a cuff,
To be repaid in kind.

ON WINE AND SPIRITS.

GEORGE and HARRY, accompanied by their tutor, went one day to pay a visit to a neighboring gentleman, their father's friend. They were very kindly received, and shown all about the gardens

and pleasure-grounds ; but nothing took their fancy so much as an extensive graperies, hung round with bunches of various kinds, fully ripe, and almost too big for the vines to support. They were liberally treated with the fruit, and carried away some bunches to eat as they walked. During their return, as they were picking their grapes, said George to the tutor, a thought has just come into my head, sir. Wine, you know, is called the juice of the grape ; but wine is hot, and intoxicates people that drink much of it. Now we have had a good deal of grape juice this morning, and yet I do not feel heated, nor does it seem at all to have got into our heads. What is the reason of this ?

Tut. The reason is, that grape juice is not wine, though wine is made from it.

G. Pray how is it made, then ?

T. I will tell you ; for it is a matter worth knowing. The juice pressed from grapes, called *must*, is at first a sweet watery liquor, with a little tartness, but with no strength or spirit. After it has stood awhile, it begins to grow thick and muddy, it moves up and down, and throws scum and bubbles of air to the surface. This is called *working* or *fermenting*. It continues in this state for some time, more or less, according to the quality of the juice and the temperature of the weather, and then gradually settles again, becoming clearer than at first. It has now lost its sweet flat taste, and acquired a briskness and pungency, with a heating and intoxicating property ; that is,

it has become *wine*. This natural process is called the *vinous fermentation*, and many liquors besides grape juice are capable of undergoing it.

G. I have heard of the working of beer and ale. Is that of the same kind ?

T. It is ; and beer and ale may properly be called barley wine ; for you know they are clear, brisk, and intoxicating. In the same manner, cider is apple wine, and mead is honey wine ; and you have heard of raisin and currant wine, and a great many others.

Har. Yes, there is elder wine, and cowslip wine, and orange wine.

G. Will every thing of that sort make wine ?

T. All vegetable juices, that are sweet, are capable of fermenting, and of producing a liquor of a vinous nature ; but if they have little sweetness, the liquor is proportionally weak and poor, and is apt to become sour or vapid.

H. But barley is not sweet.

T. Barley, as it comes from the ear, is not ; but before it is used for brewing, it is made into *malt*, and then it is sensibly sweet. You know what malt is ?

H. I have seen heaps of it, in the malt-house, but I do not know how it is made.

T. Barley is made malt, by putting it in heaps and wetting it, when it becomes hot, and swells, and would sprout out, just as if it were sown, unless it were then dried in a kiln. By this operation, it acquires a sweet taste. You have drunk sweet wort ?

H. Yes.

T. Well, this is made by steeping malt in hot water. The water extracts and dissolves all the sweet or sugary part of the malt. It then becomes like a naturally sweet juice.

G. Would not sugar and water then make wine ?

T. It would ; and the wines made in England, of the common fruits and flowers, have all a good deal of sugar in them. Cowslip flowers, for example, give little more than the flavor to the wine named from them, and it is the sugar, added to them, which properly makes the wine.

G. But none of these wines, are so good as grape wine.

T. No. The grape, from the richness and abundance of its juice, is the fruit universally preferred for making wine, where it comes to perfection, which it seldom does in our climate, except by means of artificial heat.

H. I suppose, then, grapes are finest in the hottest countries.

T. Not so, neither ; they are properly a fruit of the temperate zone, and do not grow well between the tropics. And in very hot countries, it is scarcely possible to make wines, of any kind, to keep, for they ferment so strongly, as to turn sour almost immediately.

G. I think I have read of palm wine on the coast of Guinea.

T. Yes. A sweet juice flows abundantly from incisions in certain species of the palm, which

ferments immediately, and makes a very pleasant sort of weak wine. But it must be drunk the same day it is made, for on the next, it is as sour as vinegar.

G. What is vinegar ? is it not sour wine ?

T. Every thing that makes wine, will make vinegar also ; and the stronger the wine, the stronger the vinegar. The vinous fermentation must be first brought on, but it need not produce perfect wine ; for when the intention is to make vinegar, the liquor is kept still warm, and it goes on without stopping, to another kind of fermentation, called the *acetous*, the product of which is vinegar.

G. I have heard of *alear*. I suppose that is vinegar made of ale.

T. It is ; but as ale is not so strong as wine, the vinegar made from it, is not so sharp or perfect. But housewives make good vinegar with sugar and water.

H. Will vinegar make people drunk, if they take too much of it ?

T. No. The wine loses its intoxicating quality, as well as its taste, on turning to vinegar.

G. What are spirituous liquors ? have they not something to do with wine ?

T. Yes. They consist of the spirituous or intoxicating part of wine separated from the rest. You may remember that on talking of distillation, I told you that it was the raising of a liquor in steam or vapor, and condensing it again ; and that some liquors were more easily turned to va-

por than others, and were therefore called more volatile or evaporable. Now, wine is a mixed or compound liquor, of which the greater part is water ; but what heats and intoxicates is *vinous spirits*. This spirit, being much more volatile than water, on the application of a gentle heat, flies off in vapor, and may be collected by itself in distilling vessels ; and thus are made spirituous liquors.

G. Will every thing that you called wine, yield spirits ?

T. Yes, every thing that has undergone the vinous fermentation. Thus, in England, a great deal of malt spirit is made from a kind of wort brought into fermentation, and then set directly to distil, without first making ale or beer of it. Gin is a spirituous liquor also got from corn, and flavored with juniper berries. Even potatoes, carrots, and turnips, may be made to afford spirits, by first fermenting their juices. In the West Indies, rum is distilled from the dregs of the sugar canes, washed out by water, and fermented. But brandy is distilled from the fermented juice of the grape, and is made in the wine countries.

G. Is spirits of wine different from spirituous liquors ?

T. It is the strongest part of them got by distilling over again ; for all these still contain a good deal of water, along with a pure spirit, which may be separated by a gentler heat than was used at first. But in order to procure this as strong and pure as possible, it must be distilled several times

over, always leaving some of the watery part behind. When perfectly pure, it is the same, whatever spirituous liquor it is got from.

H. My mamma has little bottles of lavender water. What is that ?

T. It is spirit of wine, flavored with lavender flowers ; and it may, in like manner, be flavored with many other fragrant things, since their odoriferous part is volatile, and will rise in vapor along with the spirit.

H. Will not spirits of wine burn violently ?

G. That it will, I can tell you ; and so will rum and brandy ; for you know it was set on fire when we made snap-dragon.

T. All spirituous liquors are highly inflammable, and the more so, the purer they are. One way of trying the purity of spirit is to see if it will burn all away without leaving any moisture behind. Then it is much lighter than water, and that affords another way of judging of its strength. A hollow ivory ball is set to swim in it ; and the deeper it sinks down, the lighter, and therefore the more spirituous, is the liquor.

G. I have heard much of the mischief done by spirituous liquors ; pray what good do they do ?

T. The use and abuse of wine and spirits is a very copious subject ; and there is scarcely any gift of human art, the general effects of which are more dubious. You know what wine is said to be given for in the Bible.

G. To make glad the heart of man.

T. Right. And nothing has such an immediate effect in inspiring vigor of body and mind as wine. It banishes sorrow and care, recruits from fatigue, enlivens the fancy, inflames the courage, and performs a hundred fine things, of which I could bring you abundant proof from the poets. The physicians, too, speak almost as much in its favor, both in diet and medicine.* But its really good effects are only when used in moderation ; and it unfortunately is one of those things which man can hardly be brought to use moderately. Excess in wine, brings on effects the very contrary to its benefits. It stupifies and enfeebles the mind, and fills the body with incurable diseases. And this it does, even when used without intoxication. But a drunken man loses for the time every distinction of a reasonable creature, and becomes worse than a brute beast. On this account, Mohammed entirely forbade its use to his followers ; and to this day, it is not publicly drunk in any of the countries that receive the Mohammedan religion.

G. Spirituous liquors are not good at all ; are they ?

T. They have so little good, and so much bad, in them, that I confess I wish their common use could be abolished altogether. They are generally taken for the express purpose of intoxication ; and they are much sooner prejudicial to the health than wine, and indeed, when drunk unmixed, are no better than slow poison.

* [Few physicians can now be found to recommend it for other than medicinal purposes.—A.M. Ed.]

G. Spirit of wine is useful, though, for several things, is it not ?

T. Yes : and I would have all spirits kept in the hands of chemists and artists who know how to employ them usefully. Spirits of wine will dissolve many things that water will not. Apothecaries use them in drawing tinctures, and artists in preparing colors and making varnishes. They are likewise very powerful preservatives from corruption. You may have seen serpents and insects brought from abroad, in phials full of spirits.

G. I have.

H. And I know of another use of spirits.

T. What is that ?

H. To burn in lamps. My grandmamma has a tea-kettle with a lamp under it to keep the water hot, and she burns spirits in it.

T. So she does. Well ; so much for the uses of these liquors.

G. But you have said nothing about ale and beer. Are they wholesome ?

T. Yes, in moderation. But they are sadly abused, too, and rob many men of their health, as well as their money and senses.

G. Small beer does no harm, however.

T. No ; and we will indulge in a good draught of it when we get home.

H. I like water better.

T. Then drink it, by all means. He that is satisfied with water, has one want the less, and may defy thirst.

THE BOY WITHOUT A GENIUS.

MR. WISEMAN, the schoolmaster, at the end of his summer vacation, received a new scholar with the following letter :

Sir,—This will be delivered to you by my son, Samuel, whom I beg leave to commit to your care, hoping that, by your wellknown skill and attention, you will be able to make something of him ; which, I am sorry to say, none of his masters have hitherto done. He is now eleven, and yet can do nothing, but read his mother tongue, and that, indifferently. We sent him, at seven, to a grammar school in our neighborhood ; but his master soon found that his genius was not turned to learning languages. He was then put to writing, but he set about it so awkwardly, that he made nothing of it. He was tried at accounts, but it appeared that he had no genius for that, neither. He could do nothing in geography, for want of memory. In short, if he has any genius at all, it does not yet show itself. But I trust to your experience in cases of this nature, to discover what he is fit for, and to instruct him accordingly. I beg to be favored, shortly, with your opinion about him, and remain, sir,

Your most obedient servant,
HUMPHRY ACRES.

When Mr. Wiseman had read this letter, he shook his head, and said to his assistant, a pretty subject they have sent us here! a lad that has a great genius for nothing at all. But perhaps my friend, Mr. Acres, expects that a boy should show a genius for a thing before he knows any thing about it;—no uncommon error! Let us see, however, what the youth looks like. I suppose he is a human creature, at least.

Master Samuel Acres was now called in. He came hanging down his head, and looking as if he was going to be flogged.

Come hither, my dear! said Mr. Wiseman; stand by me, and do not be afraid. Nobody will hurt you. How old are you?

Eleven, last May, sir.

A well-grown boy of your age, indeed. You love play, I dare say.

Yes, sir.

What! are you a good hand at marbles?

Pretty good, sir.

And can spin a top, and drive a hoop, I suppose?

Yes, sir.

Then you have the full use of your hands and fingers?

Yes, sir.

Can you write, Samuel?

I learned a little, sir, but I left it off again.

And why so?

Because I could not make the letters.

No! Why, how do you think other boys do? have they more fingers than you?

No, sir.

Are you not able to hold a pen as well as a marble ?

Samuel was silent.

Let me look at your hand.

Samuel held out both his paws, like a dancing bear.

I see nothing here to hinder you from writing as well as any boy in the school. You can read, I suppose.

Yes, sir.

Tell me, then, what is written over the school-room door.

Samuel, with some hesitation, read,

WHATEVER MAN HAS DONE, MAN MAY DO.

Pray, how did you learn to read ? Was it not with taking pains ?

Yes, sir.

Well, taking more pains will enable you to read better. Do you know any thing of the Latin grammar ?

No, sir.

Have you never learned it ?

I tried, sir, but I could not get it by heart.

Why, you can say some things by heart. I dare say you can tell me the names of the days of the week in their order.

Yes, sir, I know them.

And the months in the year, perhaps.

Yes, sir.

And you could probably repeat the names of

your brothers and sisters, and all your father's servants, and half the people in the village besides.

I believe I could, sir.

Well, and is *hic*, *hæc*, *hoc*, more difficult to remember, than these ?

Samuel was silent.

Have you learned any thing of accounts ?

I went into addition, sir, but I did not go on with it.

Why so ?

I could not do it, sir.

How many marbles can you buy for a penny ?

Twelve new ones, sir.

And how many for a halfpenny ?

Six.

And how many for two pence ?

Twenty-four.

If you were to have a penny a day, what would that make in a week ?

Seven pence.

But if you paid two pence out of that, what would you have left ?

Samuel studied awhile, and then said, five pence.

Right. Why, here you have been practising the four great rules of arithmetic, addition, subtraction, multiplication, and division. Learning accounts is no more than this. Well, Samuel, I see what you are fit for. I shall set you about nothing but what you are able to do ; but observe, you *must* do it. We have no *I can't* here. Now go among your schoolfellows.

Samuel went away, glad that his examination was over, and with more confidence in his powers, than he had felt before.

The next day he began business. A boy less than himself was called out, to set him a copy of letters, and another was appointed to hear him in grammar. He read a few sentences, in English, that he could perfectly understand, to the master himself. Thus, by going on, steadily and slowly, he made a sensible progress. He had already joined his letters, got all the declensions perfectly, and half the multiplication table, when Mr. Wiseman thought it time to answer his father's letter ; which he did as follows.

Sir,—I now think it right to give you some information concerning your son. You perhaps expected it sooner, but I always wish to avoid hasty judgements. You mentioned, in your letter, that it had not yet been discovered which way his genius pointed. If by *genius*, you meant such a decided bent of mind to any one pursuit, as will lead to excel with little or no labor or instruction, I must say that I have not met with such a quality in more than three or four boys, in my life, and your son is certainly not among the number. But if you mean, only, the *ability* to do some of those things which the greater part of mankind can do, when properly taught, I can affirm that I find in him no peculiar deficiency ; and, whether you choose to bring him up to a trade, or to some practical profession, I see no reason to doubt that

he may, in time, become sufficiently qualified for it. It is my favorite maxim, sir, that every thing most valuable in this life, may generally be acquired, by taking pains for it. Your son has already lost much time, in the fruitless expectation of finding out what he would take up of his own accord. Believe me, sir, few boys will take up any thing, of their own accord, but a top or a marble. I will take care, while he is with me, that he loses no more time, this way, but is employed about things that are fit for him, not doubting that we shall find him fit for them.

I am, sir, yours, &c.

SOLON WISEMAN.

Though the doctrine of this letter did not perfectly agree with Mr. Acres's notions, yet, being convinced that Mr. Wiseman was more likely to make something of his son, than any of his former preceptors, he continued him at this school, for some years, and had the satisfaction to find him going on, in a steady course of gradual improvement. In due time, a profession was chosen for him, which seemed to suit his temper and talents, but for which he had no *particular turn*, having never thought at all about it. He made a respectable figure in it, and went through the world, with credit and usefulness, though *without a genius*.

HALF A CROWN'S WORTH.*

VALENTINE was in his thirteenth year, and a scholar in one of our great schools. He was a well-disposed boy, but could not help envying, a little, some of his companions, who had a larger allowance of money, than himself. He ventured, in a letter, to sound his father on the subject, not directly asking for a particular sum, but mentioning that many of the boys, in his class, had half a crown a week, for pocket-money.

His father, who did not choose to comply with his wishes, for various reasons, nor yet to refuse him in a mortifying manner, wrote an answer, the chief purpose of which, was, to make him sensible what sort of a sum half a crown a week was, and to how many more important uses it might be put, than to provide a schoolboy with things absolutely superfluous to him.

It is calculated, said he, that a grown man may be kept in health, and fit for labor, upon a pound and a half of good bread, a day. Suppose the value of this, to be two pence halfpenny, and add a penny for a quart of milk, which will greatly improve his diet. Half a crown will keep him eight or nine days, in this manner.

* [We recommend to our young readers, to make all the calculations in this article, in our own money, which will be a very useful exercise for them. They will find in the Glossary, at the end of the volume, a table of the value of English money, compared with our own.—AM. ED.]

A common laborer's wages, in England, are seven shillings per week ; and if you add somewhat, extraordinary, for harvest work, this will not make it amount to three half crowns, on an average, the year round. Suppose his wife and children to earn another half crown. For this ten shillings per week, he will maintain himself, his wife, and half a dozen children, in food, lodging, clothes, and fuel. Half a crown, then, may be reckoned the full weekly maintenance of two human creatures, in every thing necessary.

Where potatoes are much cultivated, two bushels, weighing eighty pounds a piece, may be purchased for half a crown. Here is one hundred and sixty pounds of solid food ; of which, allowing for the waste in dressing, you may reckon two pounds and a half, sufficient for the sole daily nourishment of one person. At this rate, nine people might be fed a week, for half a crown ; poorly indeed, but so as many thousands are fed, with the addition of a little salt or buttermilk.

If the father of a numerous family were out of work, or the mother sick, a parish would think half a crown a week a very ample assistance to them.

Many of the cottagers round us would receive, with great thankfulness, a sixpenny loaf per week, and reckon it a very material addition to their children's bread. For half a crown, therefore, you might purchase—the weekly blessings of five poor families.

Porter is a sort of luxury to a poor man, but not a useless one, since it will stand in the place

of some solid food, and enable him to work with better heart. You could treat a hard working man with a quart a day, of this liquor, for a fortnight, with half a crown.

Many a cottage in the country, inhabited by a large family, is let for forty shillings a year. Half a crown a week, would pay the full rent of three such cottages, and allow somewhat over, for repairs.

The usual price for schooling, at a dame-school, in a village, is two pence a week. You might therefore get fifteen children instructed in reading, and the girls in sewing, for half a crown weekly. But even in a town, you might get them taught reading, writing, and accounts, and so fitted for any common trade, for five shillings a quarter; and therefore half a crown a week would keep six children at such a school, and provide them with books, besides.

All these, are ways in which half a crown a week might be made to do a great deal of good to *others*. I shall now just mention one or two ways of laying it out, with advantage to yourself.

I know you are very fond of colored plates of plants, and other objects of Natural History. There are several works of this sort, published in monthly numbers, as the Botanical Magazine, the English Botany, the Flora Rustica, and the Naturalist's Magazine.* Now half a crown a week would enable you to purchase the best of these.

* [And several equally useful works in this country.—AM Ed.]

The same sum, laid out in the old book shops, would buy you more classics, and pretty editions too, in one year, than you could read in five.

Now, I do not grudge laying out half a crown a week upon you ; but when so many good things for yourself and others may be done with it, I am unwilling you should squander it away, like your schoolfellows, in tarts and trinkets.

THE RAT WITH A BELL.

A FABLE.

A LARGE old house, in the country, was so extremely infested with rats, that nothing could be secured from their depredations. They scaled the walls to attack flitches of bacon, though hung as high as the ceiling. Hanging shelves afforded no protection to the cheese and pastry. They penetrated by sap* into the store-room, and plundered it of preserves and sweatmeats. They gnawed through cupboard doors, undermined floors, and ran races behind the wainscots. The cats could not get at them ; they were too cunning and too well fed to meddle with poison ; and traps only now and then caught a heedless straggler. One of these, however, on being taken, was the occasion of practising a new device. This was,

* [That is, by digging under the ground, or undermining.
—AM. ED.]

to fasten a collar, with a small bell, about the prisoner's neck, and then turn him loose again.

Overjoyed at the recovery of his liberty, the rat ran into the nearest hole, and went in search of his companions. They heard at a distance the bell, tinkle, tinkle, through the dark passages, and suspecting some enemy had got among them, away they scoured, some one way and some another. The bell bearer pursued ; and soon guessing the cause of their flight, he was greatly amused by it. Wherever he approached, it was all hurry scurry, and not a tail of one of them was to be seen. He chased his old friends from hole to hole, and room to room, laughing all the while at their fears, and increasing them by all the means in his power. Presently he had the whole house to himself. "That's right," quoth he, "the fewer, the better cheer." So he rioted, alone, among the good things, and stuffed till he could hardly walk.

For two or three days, this course of life went on very pleasantly. He eat, and eat, and played the bugbear to perfection. At length, he grew tired of this lonely condition, and longed to mix with his companions, again, upon the former footing. But the difficulty was, how to get rid of his bell. He pulled and tugged with his fore feet, and almost wore the skin off his neck, in the attempt, but all in vain. The bell was now his plague and torment. He wandered from room to room, earnestly desiring to make himself known to one of his companions, but they all kept out of his reach. At last, as he was moping about discon-

solate, he fell in puss's way, and was devoured in an instant.

He who is raised so much above his fellow-creatures, as to be the object of their terror, must suffer for it, in losing all the comforts of society. He is a solitary being, in the midst of crowds. He keeps them at a distance, and they equally shun him. Dread and affection cannot subsist together.

TRIAL*

OF A COMPLAINT MADE AGAINST SUNDRY PERSONS FOR BREAKING THE WINDOWS OF DOROTHY CAREFUL, WIDOW, AND DEALER IN GINGERBREAD.

THE court being sat, there appeared in person the widow *Dorothy Careful*, to make a complaint against *Henry Luckless*, and other person or persons unknown, for breaking three panes of glass, value nine pence, in the house of the said widow. Being directed to tell her case to the court, she made a courtesy, and began as follows : " Please your lordship,† I was sitting at work by my fire-

* This was meant as a sequel of that very pleasing and ingenious little work, entitled, '*Juvenile Trials*,' in which a court of justice is supposed to be instituted in a boarding-school, composed of the scholars themselves, for the purpose of trying offences committed at school.

† [In England, the judges are addressed by the title of " My lord," " your lordship," " your worship," &c.—AM. ED.]

side, between the hours of six and seven in the evening, just as it was growing dusk, and little Jack was spinning beside me, when all at once crack went the window, and down fell a little basket of cakes that was set up against it. I started up, and cried to Jack, bless me, what's the matter ! So says Jack, somebody has thrown a stone, and broke the window, and I dare say it is some of the schoolboys. With that I ran out of the house, and saw some boys, making off, as fast as they could go. So I ran after them, as quick as my old legs would carry me ; but I should never have come near them, if one had not happened to fall down. Him I caught, and brought back to my house ; when Jack knew him, at once, to be Master Harry Luckless. So I told him I would complain of him next day ; and I hope your worship will make him pay the damage, and I think he deserves a good whipping into the bargain, for injuring a poor widow woman."

The Judge, having heard Mrs. Careful's story, desired her to sit down ; and then, calling up Master Luckless, asked him what he had to say for himself. Luckless appeared with his face a good deal scratched, and looking very ruefully. After making his bow, and sobbing two or three times, he said,

" My lord, I am as innocent of this matter, as any boy in the school, and I am sure I have suffered enough about it, already. My lord, Billy Thompson and I were playing in the lane near

Mrs. Careful's house, when we heard the window crash ; and directly after, she came running out towards us. Upon this, Billy ran away, and I ran too, thinking I might bear the blame. But after running a little way I stumbled over something that lay in the road, and before I could get up again she overtook me, and caught me by the hair, and began lugging and cuffing me. I told her it was not I that broke her window, but it did not signify ; so she dragged me to the light, lugging and scratching me all the while, and then said she would inform against me ; and that is all I know of the matter."

Judge. I find, good woman, you were willing to revenge yourself, without waiting for the justice of this court.

Widow Careful. My lord, I confess I was put into a passion, and did not properly consider what I was doing.

Judge. Well, where is Billy Thompson ?

Billy. Here, my lord.

Judge. You have heard what Harry Luckless says. Declare, upon your honor, whether he has spoken the truth.

Billy. My lord, I am sure neither he nor I had any concern in breaking the windows. We were standing together at the time, and I ran on hearing the door open, for fear of being charged with it, and he followed. But what became of him, I did not stop to see.

Judge. So, you let your friend shift for himself, and only thought of saving yourself. But did you

see any other person about the house, or in the lane ?

Billy. My lord, I thought I heard somebody on the other side of the hedge, creeping along, a little before the window was broken, but I saw nobody.

Judge. You hear, good woman, what is alleged in behalf of the person you have accused. Have you any other evidence against him ?

Widow Careful. One might be sure that they would deny it, and tell lies for one another : but I hope I am not to be put off in that manner.

Judge. I must tell you, mistress, that you give too much liberty to your tongue, and are guilty of as much injustice as that of which you complain. I should be sorry, indeed, if the young gentlemen of this school deserved the general character of liars. You will find among us, I hope, as just a sense of what is right and honorable, as among those who are older ; and our worthy master certainly would not permit us to try offences in this manner, if he thought us capable of bearing false witness in each other's favor.

Widow Careful. I ask your lordship's pardon, I did not mean to offend ; but it is a heavy loss for a poor woman, and though I did not catch the boy in the fact, he was the nearest, when it was done.

Judge. As that is no more than a suspicion, and he has the positive evidence of his school-fellow in his favor, it will be impossible to convict him, consistently with the rules of justice. Have

you discovered any other circumstance, that may point out the offender ?

Widow Careful. My lord, next morning, Jack found on the floor, this top, which I suppose the window was broke with.

Judge. Hand it up. Here, gentlemen of the jury, please to examine it, and see if you can discover any thing of its owner.

Juryman. Here is P. R. cut upon it.

Another. Yes, and I am sure I recollect Peter Riot's having just such a one.

Another. So do I.

Judge. Master Riot, is this your top ?

Riot. I do n't know, my lord, perhaps it may be mine ; I have had a great many tops, and when I have done with them, I throw them away, and any body may pick them up, that pleases. You see it has lost its peg.

Judge. Very well, sir. Mrs. Careful, you may retire.

Widow Careful. And must I have no amends, my lord ?

Judge. Have patience. Leave every thing to the court. We shall do you all the justice in our power. As soon as the widow was gone, the Judge rose from his seat, and with much solemnity thus addressed the assembly :

Gentlemen,—this business, I confess, gives me much dissatisfaction. A poor woman has been insulted, and injured in her property, apparently without provocation ; and, though she has not been able to convict the offender, it cannot be

doubted that she, as well as the world in general, will impute the crime to some of our society. Though I am, in my own mind, convinced, that in her passion she charged an innocent person, yet the circumstance of the top is a strong suspicion, indeed almost a proof, that the perpetrator of this unmanly mischief was one of our body. The owner of the top has justly observed, that its having been his property is no certain proof against him. Since, therefore, in the present defect of evidence, the whole school must remain burdened with the discredit of this action, and share in the guilt of it, I think fit, in the first place, to decree, that restitution shall be made to the sufferer out of the public chest : and next, that a court of inquiry be instituted, for the express purpose of searching thoroughly into this affair, with power to examine all persons upon honor, who are thought likely to be able to throw light upon it. I hope, gentlemen, these measures meet with your concurrence.

The whole court bowed to the Judge, and expressed their entire satisfaction with his determination.

It was then ordered, that the public treasurer should go to the widow Careful's house, and pay her the sum of one shilling, making at the same time a handsome apology in the name of the school. And six persons were taken by lot, out of the jury, to compose the court of inquiry, which was to sit in the evening.

The court then adjourned.

On the meeting of the court of inquiry, the first thing proposed by the President was, that the persons, who usually played with Master Riot, should be sent for. Accordingly, Tom Frisk and Bob Loiter were summoned ; when the President asked them, upon their honor, if they knew the top to have been Riot's. They said they did. They were then asked, whether they remembered when Riot had it in his possession ?

Frisk. He had it the day before yesterday, and split a top of mine with it.

Loiter. Yes, and then, as he was making a stroke at mine, the peg flew out.

Presid. What did he then do with it ?

Frisk. He put it into his pocket, and said, as it was a strong top, he would have it mended.

Presid. Then he did not throw it away, or give it to any body ?

Loiter. No ; he pocketed it up, and we saw no more of it.

Presid. Do you know of any quarrel he had with Widow Careful ?

Frisk. Yes ; a day or two before, he went to her shop, for some gingerbread ; but as he already owed her six pence, she would not let him have any, till he had paid his debts.

Presid. How did he take this disappointment ?

Frisk. He said he would be revenged on her.

Presid. Are you sure he used such words ?

Frisk. Yes, Loiter heard him as well as myself.

Loiter. I did, sir.

Presid. Do either of you know any more of this affair ?

Both. No, sir.

Presid. You may go.

The President now observed, that these witnesses had done a great deal in establishing proofs against Riot ; for it was now pretty certain that no one, but himself, could have been in possession of the top at the time the crime was committed ; and it also appeared, that he had declared a malicious intention against the woman, which it was highly probable he would put in execution. As the court was debating about the next step to be taken, they were acquainted, that Jack, the widow's son, was waiting at the school door for admission ; and a person being sent out for him, Riot was found threatening the boy, and bidding him to go home about his business. The boy was, however, conveyed safely into the room, when he thus addressed himself to the President.

Jack. Sir, an' please your worship, as I was looking about, this morning, for sticks, in the hedge over against our house, I found this buckle. So I thought to myself, sure this must belong to the rascal that broke our windows. So I have brought it, to see if any body in the school would own it.

Presid. On which side of the hedge, did you find it ?

Jack. On the other side from our house, in the close.

Presid. Let us see it. Gentlemen, this is so

smart a buckle, that I am sure I remember it, at once, and so I dare say you all do.

All. It is Riot's.

Presid. Has any body observed Riot's shoes to-day.

One Boy. Yes, he has got them tied with strings.

Presid. Very well, gentlemen ; we have nothing more to do, than to draw up an account of all the evidence we have heard and lay it before his lordship. Jack, you may go home.

Jack. Pray, sir, let somebody go with me, for I am afraid of Riot, who has just been threatening me at the door.

Presid. Master Bold will please to go along with the boy.

The minutes of the court were then drawn up, and the President took them to the Judge's chamber. After the Judge had perused them, he ordered an indictment to be drawn up against Peter Riot, "for that he meanly, clandestinely, and with malice aforethought, had broken three panes in the window of Widow Careful, with a certain instrument called a top, whereby he had committed an atrocious injury on an innocent person, and had brought a disgrace upon the society to which he belonged." At the same time, he sent an officer, to inform Master Riot that his trial would come on the next morning.

Riot, who was with some of his gay companions, affected to treat the matter with great indifference, and even to make a jest of it. However,

in the morning he thought it best to endeavor to make it up ; and accordingly, when the court was assembled, he sent one of his friends, with a shilling, saying that he would not trouble them with any further inquiries, but would pay the sum that had been issued out of the public stock. On the receipt of this message, the Judge rose, with much severity in his countenance, and observing, that by such a contemptuous behavior towards the court, the criminal had greatly added to his offence, he ordered two officers, with their staves, immediately to go and bring in Riot, and to use force, if he should resist them. The culprit, thinking it best to submit, was presently led in between two officers ; when, being placed at the bar, the Judge thus addressed him :

“ I am sorry, sir, that any member of this society can be so little sensible of the nature of a crime, and so little acquainted with the principles of a court of justice, as you have shown yourself to be, by the proposal you took the improper liberty of sending to us. If you mean it as a confession of your guilt, you certainly ought to have waited to receive from us the penalty we thought proper to inflict, and not to have imagined that an offer of the mere payment of damages, would satisfy the claims of justice against you. If you had only broken the window by accident, and on your own accord offered restitution, nothing less than the full damages could have been accepted. But you now stand charged with having done this mischief meanly, secretly, and maliciously, and there-

by have added a great deal of criminal intention to the act. Can you, then, think, that a court like this, designed to watch over the morals, as well as protect the properties, of our community, can so slightly pass over such aggravated offences? You can claim no merit from confessing the crime, now that you know so much evidence will appear against you. And if you choose still to plead not guilty, you are at liberty to do it, and we will proceed immediately to the trial, without taking any advantage of the confession implied by your offer of payment."

Riot stood silent, for some time, and then begged to be allowed to consult with his friends, what was best for him to do. This was agreed to, and he was permitted to retire, though under guard of an officer. After a short absence, he returned with more humility in his looks, and said that he pleaded guilty, and threw himself on the mercy of the court. The Judge then made a speech of some length, for the purpose of convincing the prisoner, as well as the bystanders, of the enormity of the crime. He then pronounced the following sentence :

"You, Peter Riot, are hereby sentenced to pay the sum of half a crown, to the public treasury, as a satisfaction for the mischief you have done, and your attempt to conceal it. You are to repair to the house of Widow Careful, accompanied by such witnesses as we shall appoint, and there, having first paid her the sum you owe her, you shall ask her pardon for the insult you offered

her. You shall likewise, to-morrow, after school, stand up in your place, and before all the scholars ask pardon for the disgrace you have been the means of bringing upon the society ; and, in particular, you shall apologize to Master Luckless, for the disagreeable circumstance you were the means of bringing him into. Till all this is complied with, you shall not presume to come into the play ground, or join in any of the diversions of the school ; and all persons are hereby admonished not to keep you company till this is done."

Riot was then dismissed to his room ; and, in the afternoon, he was taken to the widow's, who was pleased to receive his submission graciously, and at the same time to apologize for her own improper treatment of Master Luckless, to whom she sent a present of a nice ball, by way of amends.

Thus ended this important business.

THE LEGUMINOUS PLANTS.

Tutor—George—Harry.

GEORGE. What a delightful smell !

H. Charming ! It is sweeter than Mr. Essence's shop.

T. Do you know whence it comes ?

G. O ! it is from the bean-field, on the other side of the hedge, I suppose.

T. It is. This is the month in which beans are in blossom. See! the stalks are full of their black and white flowers.

H. I see peas in blossom, too, on the other side of the field.

G. You told us, some time ago, of grass and corn flowers, but they make a poor figure, compared to these.

T. They do. The glory of a corn-field is when it is ripe; but peas and beans look very shabbily at that time. But suppose we take a closer view of these blossoms. Go, you, George, and bring me a bean plant; and you, Harry, a pea.

[They go and bring them.]

T. Now, let us sit down, and compare them. Do you think these flowers much alike?

H. O no! very little.

G. Yes; a good deal.

T. A little, and a good deal! How can that be? Come, let us see. In the first place, they do not much resemble each other in size or color.

G. No! but I think they do in shape.

T. True. They are both irregular flowers, and have the same distribution of parts. They are of the kind called *papilionaceous*, from *papilio*, the Latin word for a butterfly, which insects they are thought to resemble.

G. The pea does a little, but not much.

T. Some do, much more than these. Well; you see, first, a broad leaf standing upright, but somewhat bent back: this is named the *standard*. On each side, are two narrower, called the *wings*.

The under side of the flower, is formed of a hollow part, resembling a boat : this is called the *keel*.

G. It is very like a boat, indeed !

T. In some kinds, however, it is divided in the middle, and so is like a boat split in two. All these parts, have claws, which unite to form a tube; set in a *calyx* or flower-cup. This tube, you observe, is longer in the bean, than in the pea, and the proportions of the other parts are somewhat different ; but the parts, themselves, are found in both.

H. So they are. I think them alike now.

T. That is the consequence of examining closely. Now, let us strip off all the leaves of this bean-flower, but the keel. What do you think this boat contains ?

G. It must be those little things, that you told us are in all flowers.

H. The chives* and pistil.

T. Right. I will draw down the keel gently, and you shall see them.

H. How curious !

T. Here are a number of chives, joining in their bodies, so as to make a round tube, or cylinder, through which, comes out a crooked thread, which is the pistil. I will now, with a pin, slit this cylinder. What do you see, within it ?

G. Somewhat like a little pod.

T. True ; and to show you that it is a pod, I will open it, and you shall see the seeds within it.

H. What tiny things ! Is this, then, what makes the bean-pod afterwards ?

* [Or stamens.—AM. ED.]

T. It is. When the blossom drops, this seed vessel grows bigger and bigger, and at length hardens, as the seeds grow ripe, becomes black and shriveled, and would burst and shed the seeds, if they were not gathered.

G. I have seen several burst pods, of our sweet peas, under the wall, with nothing left in them.

T. And it is common for the field peas and beans to lose a great part of the seeds, while they are getting in.

H. At the bottom of this pea-stalk, there are some pods set already.

T. Open one. You see that the pod is composed of two shells, and that all the seeds are not fastened to one side of the pod, but alternately to each shell.

G. Is it the same in beans ?

T. Yes, and in all other pods of the papilionaceous flowers. Well ; this is the general structure of a very numerous and useful class of plants, called the *leguminous* or *podded*. Of these, in this country, the greater part are herbaceous, with some shrubs. In the warm climates, there are also tall trees. Many of the leguminous plants, afford excellent nourishment for man and beast ; and their pods have the name of *pulse*.

G. I have read of persons living on pulse, but I did not know what it meant, before.

T. It is frequently mentioned as part of the diet of abstemious persons. Of this kind, we eat peas, beans, and kidney or French beans, of all which, there are a variety of sorts cultivated.

Other nations, eat lentils and lupines, which are of this class ; with several others.

H. I remember our lupines, in the garden, have flowers of this kind, with pods growing in clusters. But we only cultivate them, for the color and smell.

T. But other nations eat them. Then all the kinds of clover, or trefoil, which are so useful in feeding cattle, belong to this tribe ; as do likewise vetches, sainfoin, and lucerne, which are used for the same purpose. These, principally compose what are usually, though improperly, called, in agriculture, *artificial grasses*.

G. Clover flowers are as sweet as beans ; but do they bear pods ?

T. Yes ; very short ones, with one or two seeds in each. But there is a kind, called non-such, with a very small yellow flower, that has a curious twisted pod, like a snail shell. Many of the leguminous plants are weak, and cannot support themselves ; hence they are furnished with tendrils, by means of which, they clasp neighboring plants, and run up them. You know the garden peas do so, to the sticks which are set in rows with them. Some kinds of vetches run in this manner up the hedges, which they decorate with their long bunches of blue or purple flowers. Tares, which are some of the slenderest of the family, do much mischief among corn by twining around it and choking it.

H. What are they good for, then ?

T. They are weeds, or noxious plants, with

respect to us ; but doubtless they have their uses in the creation. Some of our papilionaceous plants, however, are able enough to shift for themselves ; for gorse or furze is of the number.

G. What, that prickly bush all covered over with yellow flowers, that overruns our common ?

T. Yes. Then there is broom, a plant as big, but without thorns, and with larger flowers. This is as frequent as furze, in some places.

H. I know it grows in abundance, in the broom field.

T. It does ; but the naming of fields and places from it, is a proof that it is not so common as the other.

G. We have some bushes of white broom in the shrubbery, and some trees of Spanish broom.

T. True. You have also a small tree, which flowers early, and bears a great many pendent bunches of yellow blossoms, that look peculiarly beautiful when intermixed with the purple lilacs.

H. I know it ; Laburnum.

T. Right. That is one of our class of plants too. Then there is a large tree, with delicate little leaves, protected by long thorns, and bearing bunches of white papilionaceous flowers.

G. I know which you mean, but I cannot tell the name.

T. It is the Bastard Acacia, or Locust tree, a native of America. Thus, you see, we have traced this class of plants through all sizes, from the trefoil that covers the turf, to a large tree. I should not, however, forget two others, the li-

quorice and the tamarind. The liquorice, with the sweet root of which you are well acquainted, grows in the warmer countries, especially Spain, but is cultivated in England. The tamarind is a large spreading tree, growing in the West Indies, and valued for its shade, as well as for the cooling acid pulp of its pods, which are preserved with sugar and sent over to us.

H. I know them very well.

T. Well ; do you think, now, you shall both be able to discover a papilionaceous flower when you meet with it again ?

G. I believe I shall, if they are all like these we have been examining.

G. They have all the same parts, though variously proportioned. What are these ?

T. There is the standard and two wings.

H. And the keel.

T. Right ; the keel is sometimes cleft into two, and then it is an irregular five-leaved flower. The chives are generally ten, of which one stands apart from the rest. The pistil single, and ending in a pod. Another circumstance, common to most of this tribe, is, that their leaves are *winged* or *pinnated*, that is, having leaflets set opposite each other upon a middle rib. You see this structure in these bean leaves. But in the clovers, there are only two opposite leaflets, and one terminating ; whence their name of trefoil, or three-leaf. What we call a club, on cards, is properly a clover leaf, and the French call it *trèfle*, which means the same.

G. I think this tribe of plants, almost as useful as the grasses.

T. They perhaps come the next, in utility ; but their seeds, such as beans and peas, are not quite such good nourishment as corn, though bread can be made of them.

G. But clover is better than grass for cattle.

T. It is more fattening, and makes cows yield plenty of good milk.

ON METALS.*

PART I.

GEORGE and HARRY, with their tutor, one day in their walk, were driven by the rain to take shelter in a blacksmith's shed. The shower lasting some time, the boys, in order to amuse themselves, began to examine the things around them. The great bellows first attracted their notice, and they admired the roaring it made, and the expedition with which it raised the fire to a heat too intense for them to look at. They were surprised at the dexterity with which the smith fashioned a bar of iron into a horseshoe ; first heating it, then hammering it well on the anvil, cutting off a proper length, bending it round, turning up the ends, and lastly, punching the nail holes. They watched the

* [All the metals here mentioned, are found in the United States ; some of them, particularly iron, lead, and copper, are very abundant.—AM. ED.]

whole process of fitting it to the horse's foot, and fastening it on ; and it had become fair some minutes before they showed a desire to leave the shop and proceed on their walk.

I could never have thought (says *George*, beginning the conversation) that such a hard thing as iron could have been so easily managed.

Nor I neither, (said *Harry*.)

Tut. It was managed, you saw, by the help of fire. The fire made it soft and flexible, so that the smith could easily hammer it, and cut it, and bend it to the shape he wanted ; and then, dipping it in water, made it hard again.

G. Are all other metals managed in the same manner ?

T. They are all worked by the help of fire in some way or other ; either in melting them, or making them soft.

G. There are a good many sorts of metals, are there not ?

T. Yes, several ; and if you have a mind, I will tell you about them, and their uses.

G. Pray do, sir.

H. Yes ; I should like to hear it of all things.

T. Well, then. First let us consider what a metal is. Do you think you should know one from a stone ?

G. A stone ! Yes, I could not mistake a piece of lead or iron for a stone.

T. How would you distinguish it ?

G. A metal is bright and shining.

T. True ; brilliance is one of the qualities. But glass and crystal are very bright, too.

H. But one may see through glass, and not through a piece of metal.

T. Right. Metals are brilliant, but opaque, or not transparent. The thinnest plate of metal that can be made, will keep out the light, as effectually as a stone wall.

G. Metals are very heavy, too.

T. True. They are the heaviest bodies in Nature ; for the lightest metal, is nearly twice as heavy as the heaviest stone. Well, what else ?

G. Why, they will bear beating with a hammer, which a stone would not, without flying in pieces.

T. Yes ; that property of extending or spreading under the hammer is called *malleability* ; and another, like it, is that of bearing to be drawn out into a wire, which is called *ductility*. Metals have both these, and much of their use depends upon them.

G. Metals will melt, too.

H. What ! will iron melt ?

T. Yes : all metals will melt, though some require greater heat than others. The property of melting, is called *fusibility*. Do you know any thing more about them ?

G. No ; except that they come out of the ground, I believe.

T. That is properly added, for it is the circumstance which makes them rank among *fossils*, or minerals. To sum up their character, then, a metal is a brilliant, opaque, heavy, malleable, ductile, and fusible mineral.

G. I think I can hardly remember all that.

T. The *names* may slip your memory, but you cannot see metals at all used without being sensible of the *things*.

G. But what are *ores*? I remember seeing a heap of iron ore which men were breaking with hammers, and it looked only like stones.

T. The *ore* of a metal is the state in which it is generally met with in the earth, when it is so mixed with stony and other matters, as not to show its proper qualities as a metal.

H. How do people know it, then?

T. By experience. It was probably accident, that in the early ages discovered that certain fossils, by the force of fire, might be made to yield a metal. The experiment was repeated on other fossils; so that, in length of time, all the different metals were found out, and all the different forms in which they lie concealed in the ground. The knowledge of this, is called *Mineralogy*, and a very important science it is.

G. Yes, I suppose so; for metals are very valuable things. Our next neighbor, Mr. Sterling, I have heard, gets a great deal of money every year from his mines in Wales.

T. He does. The mineral riches of some countries are much superior to that of their products above ground, and the revenues of many kings are in great part derived from their mines.

H. I suppose they must be gold and silver mines.

T. Those, to be sure, are the most valuable,

if the metals are found in tolerable abundance. But do you know why they are so ?

H. Because money is made of gold and silver.

T. That is a principal reason, no doubt. But these metals have intrinsic properties that make them highly valuable, else probably they would not have been chosen in so many countries to make money of. In the first place, gold and silver are both *perfect metals*, that is, indestructible in the fire. Other metals, if kept a considerable time in the fire, change by degrees into a powdery or scaly matter, called a calx. You have melted lead, I dare say.

G. Yes, often.

T. Have you not, then, perceived a drossy film collect upon its surface after it had been kept melting awhile ?

G. Yes.

T. That is a calx ; and in time the whole lead would change to such a substance. You may see, too, when you have heated the poker, red hot, some scales separate from it, which are brittle and drossy.

H. Yes ; the kitchen poker is almost burnt away by putting it in the fire.

T. Well ; all metals undergo these changes, except gold and silver ; but these, if kept ever so long in the hottest fire, sustain no loss or change. They are therefore called *perfect metals*. Gold has several other remarkable properties. It is the heaviest of all metals, [excepting platina.]

H. What, is it heavier than lead ?

T. Yes ; above half as heavy again. It is between nineteen and twenty times heavier than an equal bulk of water. This great weight is a ready means of discovering counterfeit gold coin from genuine ; for as gold must be adulterated with something much lighter than itself, a false coin, if of the same weight with the true, will be sensibly bigger. Gold, too, is the most ductile of all metals. You have seen leaf gold ?

G. Yes ; I bought a book of it once.

T. Leaf gold is made by beating a plate of gold placed between pieces of skin, with heavy hammers, till it is spread out to the utmost degree of thinness. And so great is its capacity for being extended, that a single grain of the metal, which would be scarce bigger than a large pin's head, is beat out to a surface of fifty square inches.

G. That is wonderful indeed ! but I know leaf gold must be very thin, for it will almost float upon the air.

T. By drawing gold out to a wire, it may be still further extended. Gold wire, as it is called, is made with silver, overlaid with a small proportion of gold, and they are drawn out together. In the wire commonly used for laces, and embroidery, and the like, a grain of gold is made completely to cover a length of three hundred and fifty-two feet ; and when it is stretched still farther by flattening, it will reach four hundred and one feet.

H. Prodigious ! What a vast way a guinea might be drawn out, then !

T. Yes ; the gold of a guinea at that rate, would

reach above nine miles and a half. This property in gold, of being capable of extension to so extraordinary a degree, is owing to its great tenacity or cohesion of particles, which is such, that you can scarcely break a piece of gold wire by twisting it ; and a wire of gold will sustain a greater weight than one of any other metal, equally thick.

H. Then it would make very good wire for hanging bells.

T. It would ; but such bell hanging would come rather too dear. Another valuable quality of gold is its fine color. You know, scarce any thing makes a more splendid appearance than gilding. And a peculiar advantage of it is, that gold is not liable to rust or tarnish as other metals are. It will keep its color fresh for a great many years, in a pure and clear air.

H. I remember the vane of the church steeple was new gilt, two years ago, and it looks as well as at first.

T. This property of not rusting would render gold very useful for a variety of purposes, if it were more common. It would make excellent cooking utensils, water-pipes, mathematical instruments, clock-work, and the like.

G. But is not gold soft ? I have seen pieces of gold bent double.

T. Yes ; it is next in softness to lead, and therefore when it is made into coin, or used for any common purposes, it is mixed with a small proportion of some other metal, in order to harden it.

This is called its *alloy*. Our gold coin has one twelfth part of alloy, which is a mixture of silver and copper.

G. How beautiful new gold coin is !

T. Yes ; scarce any metal takes a stamp or impression better ; and it is capable of a very fine polish.

G. What countries yield the most gold ?

T. South America, the East Indies, and the coast of Africa. Europe affords but little ; yet a moderate quantity is got every year from Hungary.

G. I have read of rivers rolling sands of gold. Is there any truth in that ?

T. The poets, as usual, have greatly exaggerated the matter ; however, there are various streams in different parts of the world, the sands of which contain particles of gold, and some of them in such quantities as to be worth the search.

H. How does the gold come there ?

T. It is washed down along with the soil from mountains, by the torrents, wherein are the sources of rivers. Some persons say that all sands contain gold ; but I would not advise you to take the pains to search for it in our common sand ; for in more senses than one, *gold may be bought too dear*.

H. But what a fine thing it would be, to find a gold mine on one's estate !

T. Perhaps not so fine as you imagine ; for many a one does not pay the cost of working. A coal pit would probably be a better thing. Who

do you think are the greatest gold-finders in Europe ?

H. I do n't know.

T. The gypsies in Hungary. A number of half-starved, half-naked wretches of that community employ themselves in washing and picking the sands of some mountain streams in that country which contain gold, from which they obtain just profit enough to keep body and soul together ; whereas, had they employed themselves in agriculture or manufactures, they might have got a comfortable subsistence. Gold, almost all the world over, is first got by slaves, and it makes slaves of those who possess much of it.

G. For my part, I will be content with a silver mine.

H. There are none of those in England, are there ?

T. There are no silver mines, properly so called, but silver is procured in some of the lead mines. There are, however, pretty rich silver mines in various parts of Europe ; but the richest of all are in Peru, in South America.

G. Are not the famous mines of Potosi there ?

T. They are. Shall I now tell you some of the properties of silver ?

G. By all means.

T. It is the other *perfect* metal. It is also as little liable to rust as gold, though indeed it readily gets tarnished.

H. Yes ; I know our footman is often obliged to clean our plate before it is used.

T. Plate, however, is not made of pure silver, any more than silver coin, and silver utensils of all kinds. An alloy is mixed with it, as with gold, to harden it ; and that makes it more liable to tarnish.

G. Bright silver, I think, is almost as beautiful as gold.

T. It is the most beautiful of the white metals, and is capable of a very fine polish ; and this, together with its rarity, makes it used for a great variety of ornamental purposes. Then it is nearly as ductile and malleable as gold.

G. I have had silverleaf, and it seemed as thin as goldleaf.

T. It is nearly so. That is used for silvering, as goldleaf is for gilding. It is common, too, to cover metals with a thin coating of silver, which is called plating.

H. The child's saucepan is silvered over on the inside. What is that for ?

T. To prevent the victuals from getting any taint from the metal of the saucepan ; for silver is not capable of being corroded or dissolved by any of the liquids used for food, as iron and copper are.

H. And that is the reason, I suppose, that fruit knives are made of silver.

T. It is ; but the softness of the metal makes them bear a very poor edge.

G. Does silver melt easily ?

T. Silver and gold both melt more difficultly than lead ; and not till they are above a common

red heat. As to the weight of silver, it is nearly one half less than that of gold, being only eleven times heavier than water.

H. Is quicksilver a kind of silver ?

T. It takes its name from silver, being very like it in color ; but in reality it is a very different thing, and one of the most singular of the metal kind.

G. It is not *malleable*, I am sure.

T. Not when it is quick or fluid, as it always is in our climate. But a very great degree of cold makes it solid, and then it is malleable, like other metals.

G. I have heard of *killing* quicksilver ; pray what does that mean ?

T. It means destroying its property of running about, by mixing it with somewhat else. Thus, if quicksilver be well rubbed with fat, or oil, or gum, it unites with them, losing all its metallic appearance and fluidity. It also unites readily with gold and silver, and several other metals, into the form of a kind of shining paste, which is called an *amalgam*. This is one of the ways of gilding or silvering a thing. Your buttons are gilt by means of an amalgam.

G. How is that done ?

T. The shells of the button, which are made of copper, are shaken in a hat with a lump of amalgam of gold and quicksilver, till they are all covered over with it. They are then put into a sort of fryingpan and held over the fire. The quicksilver, being very volatile in its nature, flies

off in the form of a smoke or vapor when it is heated, leaving the gold behind it, spread over the surface of the button. Thus many dozen are gilt at once with the greatest ease.

H. What a clever way ! I should like vastly to see it done.

T. You may see it any day at Birmingham, if you happen to be there ; as well as a great many other curious operations on metals.

G. What a weight quicksilver is ! I remember taking up a bottle full of it, and I had like to have dropt it again, it was so much heavier than I expected.

T. Yes, it is one of the heaviest of the metals ; about fifteen times heavier than water.

G. Is not *mercury* a name for quicksilver ? I have heard them talk of the mercury rising and falling in the weatherglass.

T. It is. You, perhaps, may have heard too of *mercurial medicines*, which are those made of quicksilver prepared in one manner or other.

G. What are they good for ?

T. For a variety of complaints. Your brother took some, lately, for the worms ; and they are often given for breakings out on the skin, and for sores and swellings. But they have one remarkable effect, when taken in a considerable quantity, which is, to loosen the teeth, and cause a great spitting. This is called salivation.

H. I used to think quicksilver was poison.

T. When it is in its common state of running

quicksilver, it generally does neither good nor harm ; but it may be prepared, so as to be a very violent medicine, or even a poison.

G. Is it useful for any thing else ?

T. Yes ; for a variety of purposes in the arts, which I cannot now very well explain to you. But you will perhaps be surprised to hear that one of the finest red paints is made from quicksilver.

H. A red paint ! which is that ?

T. Vermilion, or cinnabar, which is a particular mixture of sulphur with quicksilver.

H. Is quicksilver found in England ?

T. No. The greatest quantity comes from Spain, Istria, and South America. It is a considerable object of commerce, and bears a high value, though much inferior to silver. Well ;—so much for metals, at present. We will talk of the rest, on some future opportunity.

ON METALS.

PART II.*

Tutor—George—Harry.

TUTOR. Well ; have you forgot what I told you about metals the other day ?

G. O no !

H. I am sure I have not.

* [See note to Part I., p. 95.]

T. What metals were they that we talked about ?

G. Gold, silver, and quicksilver.

T. Suppose, then, we go on to the rest.

G. Pray do.

H. Yes, by all means.

T. Very well. You know *copper*, I do n't doubt.

G. O yes !

T. What color do you call it ?

G. I think it is a sort of reddish brown.

T. True. Sometimes, however, it is of a bright red, like sealing wax. It is not a very heavy metal, being not quite nine times the weight of water. It is pretty ductile, bearing to be rolled or hammered out to a very thin plate, and also to be drawn out to a very fine wire.

H. I remember seeing a halfpenny, that had been rolled out to a long ribbon.

G. Yes, and I have seen half a dozen men at a time, with great hammers, beating out a piece of copper, at the brazier's.

T. Copper requires a very considerable heat to melt it ; and by long exposure to the fire, it may be burned or calcined ; for it, like all we are now to speak of, is an *imperfect* metal.

H. And it rusts very easily, does it not ?

T. It does ; for all acids dissolve or corrode it ; so do salts of every kind ; whence even air, and common water, in a short time act upon it, for they are never free from somewhat of a saline nature.

G. Is not verdigris the rust of copper ?

T. It is ;—a rust produced by the acid of grapes. But every rust of copper is of a blue or green color, as well as verdigris.

H. And are they all poison, too ?

T. They are all so in some degree, producing violent sickness and pain in the bowels. They are all, too, extremely nauseous to the taste ; and the metal itself, when heated, tastes and smells very disagreeably.

G. Why is it used, then, so much in cooking, and brewing, and the like ?

T. Because it is a very convenient metal for making vessels, especially large ones, as it is easily worked, and is sufficiently strong though hammered thin, and bears the fire well. And if vessels of it are kept quite clean, and the liquor not suffered to stand long in them when cold, there is no danger in their use. But copper vessels, for cooking, are generally lined on the inside, with tin.

G. What else is copper used for ?

T. A variety of things. Sheets of copper are sometimes used to cover buildings ; and of late, a great quantity is consumed in sheathing ships, that is, in covering all the part under water ; the purpose of which is to protect the timber from the worms, and also to make the ship sail faster, by means of the greater smoothness and force with which the copper makes way through the water.

H. Some money is made of copper, too.

T. It is ; for it takes an impression in coining,

very well, and its value is a proper proportion below silver, for a price for the cheapest sort of commodities. In some poor countries, they have little other than copper coin. Another great use of copper is as an ingredient in mixed metals, such as bell-metal, cannon-metal, and particularly brass.

H. But brass is yellow.

T. True ; it is converted to that color by means of another metallic substance, named *zinc* or *spelter*, the natural color of which is white. A kind of brown stone called *calamine* is an ore of zinc. By filling a pot, with layers of powdered calamine and charcoal, placed alternately with copper, and applying a pretty strong heat, the zinc is driven in vapor out of the calamine, and penetrates the copper, changing it into brass.

G. What is the use of turning copper into brass ?

T. It gains a fine gold-like color, and becomes harder, more easy to melt, and less liable to rust. Hence it is preferred for a variety of utensils, ornamental and useful. Brass does not bear hammering well, but is generally cast into the shape wanted, and then turned in a lathe and polished. Well ; these are the principal things I have to say about copper.

H. But where does it come from ?

T. Copper is found in many countries. Great Britain yields abundance, especially in Wales and Cornwall. In Anglesey is a whole hill, called Paris-mountain, consisting of copper ore, from which immense quantities are dug, every year. Now for *iron*.

H. Ay ! that is the most useful of all the metals.

T. I think it is ; and it is likewise the most common ; for there are few countries in the world, possessing hills and rocks, where it is not met with, more or less. Iron is the hardest of metals, the most elastic or springy, the most tenacious or difficult to break ; next to gold, the most difficultly fusible, and one of the lightest, being only seven or eight times heavier than water.

G. You say it is difficult to break ; but I snapt the blade of a penknife the other day, by only bending it a little ; and my mother is continually breaking her needles.

T. Properly objected ! But the qualities of iron differ, extremely, according to the method of preparing it. There are forged iron, cast iron, and steel, which are very different from each other. Iron, when first melted from its ore, has little malleability, and the vessels and other implements that are made of it, in that state, by casting into moulds, are easily broken. It acquires toughness and malleability by *forging*, which is done by beating it, when red hot, with heavy hammers, till it becomes ductile and flexible. Steel, again, is made by heating small bars of iron with wood-ashes, charcoal, bone and horn shavings, or other inflammable matters, by which it acquires a finer grain and more compact texture, and becomes harder and more elastic. Steel may be rendered either very flexible, or brittle, by different manners of *tempering*, which is performed by heating,

and then quenching it in water. Steel, is iron in its more perfect state.

G. All cutting instruments are made of steel, are they not ?

T. Yes ; and the very fine edged ones, are generally tempered brittle, as razors, penknives, and surgeon's instruments ; but sword-blades are made flexible, and the best of them will bend double without breaking or becoming crooked. The steel of which springs are made, have the highest possible degree of elasticity given them. A watch-spring is one of the most perfect examples of this kind. Steel for ornaments is made extremely hard and close grained, so as to bear an exquisite polish. Common hammered iron is chiefly used for works of strength, as horseshoes, bars, bolts, and the like. It will bend, but not straighten itself again, as you see in the kitchen poker. Cast iron is used for pots and cauldrons, cannons, cannon-balls, grates, pillars, and many other purposes in which hardness without flexibility is wanted.

G. To what a vast variety of uses this metal is put !

T. Yes ; I know not when I should have done if I were to tell you of all.

H. Then I think it is really more valuable than gold, though it is so much cheaper.

T. That was the opinion of the wise Solon, when he observed to the rich king Cræsus, who was showing him his treasures, " he who possesses more iron will soon be master of all this gold."

H. I suppose he meant weapons and armor.

T. He did ; but there are many nobler uses of this metal ; and few circumstances denote the progress of the arts in a country more, than having attained the full use of iron, without which, scarcely any manufacture or machinery can be brought to perfection. From the difficulty of melting it out of the ore, many nations have been longer in discovering it, than some of the other metals. The Greeks, in Homer's time, seem to have employed copper or brass for their weapons much more than iron ; and the Mexicans and Peruvians, who possessed gold and silver, were unacquainted with iron when the Spaniards invaded them.

G. Iron is very subject to rust, however.

T. It is so, and that is one of its worst properties. Every liquor, and even a moist air, corrodes it. But the rust of iron is not pernicious ; on the contrary, it is a very useful medicine.

G. I have heard of steel drops, and steel filings, given for medicines.

T. Yes ; iron is given in a variety of forms, and the property of them all is to strengthen the constitution. Many springs are made medicinal by the iron that they dissolve in the bowels of the earth. These are called *chalybeate* waters, and they may be known by their inky taste, and the rust-colored sediment they leave in their course.

H. May we drink such water if we meet with it ?

T. Yes ; it will do you no harm, at least. There is one other property of iron, well worth

knowing, and that is, that it is the only thing attracted by the magnet or loadstone.

G. I had a magnet once that would take up needles and keys ; but it seemed a bar of iron itself.

T. True. The real loadstone, which is a particular ore of iron, can communicate its virtue to a piece of iron by rubbing it ; nay, a bar of iron itself, in length of time, by being placed in a particular position, will acquire the same property.

G. Is all the iron used in England produced there ?

T. By no means. Her extensive manufactures require a great importation of iron. Much is brought from Norway, Russia, and Sweden ; and the Swedish is reckoned particularly excellent. Well ;—now to another metal. I dare say you can tell me a good deal about *lead*.

H. I know several things about it. It is very heavy, and soft, and easily melted.

T. True ; those are some of its distinguishing properties. Its weight is between eleven and twelve times that of water. Its color is a dull bluish white ; and from this livid hue, as well as its being totally void of spring or elasticity, it has acquired a sort of character of dulness and sluggishness. Thus we say of a stupid man, that he has a *lead*en disposition.

G. Lead is very malleable, I think.

T. Yes ; it may be beat out into a pretty thin leaf, but it will not bear drawing into fine wire. It is not only very fusible, but very readily calcined by heat ; changing into a powder, or a scaly

matter, which may be made to take all colors by the fire, from yellow to deep red. You have seen red lead ?

G. Yes.

T. That is calcined lead, exposed for a considerable time to a strong flame. Lead may even be changed into glass, by a moderate heat ; and there is a good deal of it in our finest glass.

G. What is white lead ?

T. It is lead corroded by the steam of vinegar. Lead, in various forms, is much used by painters. Its calxes dissolve in oil, and are employed for the purpose of thickening paint and making it dry. All lead paints, however, are unwholesome, as long as they continue to smell ; and the fumes of lead, when melted, are likewise pernicious. This is the cause why painters and plumbers are so subject to various diseases, particularly violent colics, and palsies. The white-lead manufacture is so hurtful to the health, that the workmen in a very short time are apt to lose the use of their limbs, and be otherwise severely indisposed.

H. I wonder, then, that any body will work in them.

T. Ignorance, and high wages, are sufficient to induce them. But it is to be lamented that, in a great many manufactures, the health and lives of individuals are sacrificed to the convenience and profit of the community. Lead, too, when dissolved, as it may be, in all sour liquors, is a slow poison, and the more dangerous, as it gives no disagreeable taste. A salt of lead, made with

vinegar, is so sweet, as to be called the sugar of lead. It has been too common to put this, or some other preparation of lead, into sour wines, in order to cure them ; and much mischief has been done, by this practice.

G. If lead is poisonous, is it not wrong to make water-pipes and cisterns of it ?

T. This has been objected to ; but it does not appear that water can dissolve any of the lead. Nor does it readily rust in the air, and hence it is much used to cover buildings with, as well as to line spouts and water-courses. For these purposes, the lead is cast into sheets, which are easily cut and hammered into any shape.

G. Bullets and shot, too, are made of lead.

T. They are ; and in this way, it is ten times more destructive than as a poison.

G. I think more lead seems to be used, than any metal, except iron.

T. It is ; and the plenty of it in our country is a great benefit to us, both for domestic use, and as an article that brings in much profit by exportation.

G. Where are the principal lead mines in Britain ?

T. They are much scattered about the island. The west of England produces a good deal, in Cornwall, Devonshire, and Somersetshire. Wales affords a large quantity. Derbyshire has long been noted for its lead mines, and so have Northumberland and Durham. And there are considerable ones in the southern part of Scotland.

Now do you recollect another metal to be spoken about ?

G. Tin.

T. True. Tin resembles lead in color, but has a more silvery whiteness. It is soft and flexible, like lead, but is distinguished by the crackling noise it makes on being bent. It melts as easily as lead, and also is readily calcined by keeping it in the fire. It is the lightest of the metals, being only seven times heavier than water. Tin may be beat into a thin leaf, but not drawn out to wire.

G. Is tin of much use ?

T. It is not often used by itself, but very frequently in conjunction with other metals. As tin is little liable to rust, or to be corroded by common liquors, it is employed for a lining or coating of vessels made of copper or iron. The saucepans and kettles in the kitchen, you know, are all tinned.

G. Yes. How is it done ?

T. By melting the tin, and spreading it upon the surface of the copper, which is first lightly pitched over, in order to make the tin adhere.

H. But what are the vessels made at the tinman's ? Are not they all tin ?

T. No. *Tinned-ware* (as it is properly called) is made of thin iron plates, coated over with tin by dipping them into a vessel full of melted tin. These plates are afterwards cut, and bent to proper shapes, and the joinings are soldered together with a mixture of tin and other metals. Another similar use of tin is in what is called the silvering of pins.

G. What ! is not that real silvering ?

T. No. The pins, which are made of brass wire, after being pointed and headed, are boiled in water in which grain-tin is put, along with tartar, which is a crust that collects on the inside of wine casks. The tartar dissolves some of the tin, and makes it adhere to the surface of the pins ; and thus thousands are covered in an instant.

H. That is as clever as what you told us of the gilding of buttons.

T. It is. Another purpose for which great quantities of tin used to be employed, was the making of pewter. The best pewter, consists chiefly of tin, with a small mixture of other metals to harden it ; and the London pewter was brought to such perfection, as to look almost as well as silver.

G. I can just remember a long row of pewter plates, at my grandmother's.

T. You may. In her time, all the plates and dishes for the table, were made of pewter ; and a handsome range of pewter-shelves was thought a capital ornament for a kitchen. At present, this trade is almost come to nothing, through the use of earthenware and china ; and pewter is employed for little but stills, and barbers' basins, and porter pots. But a good deal is still exported. Tin is likewise an ingredient in other mixed metals, for various purposes ; but on the whole, less of it is used, than of the other common metals.

G. Is not England more famous for tin, than any

other country ? I have read of the Phœnicians trading here for it in very early times.

T. They did ; and tin is still a very valuable article of export from England. Much of it is sent as far as China. The tin mines are chiefly in Cornwall, and I believe they are the most productive of any in Europe. Very fine tin is also got in the peninsula of Malacca in the East Indies. Well ; we have now gone through the metals.

G. But you said something about a kind of metal called zinc.

T. That is one of another class of mineral substances, called *semi-metals*. These resemble metals in every quality but ductility, of which they are almost wholly destitute, and for want of it they can seldom be used in the arts, except when joined with metals.

G. Are there many of them ?

T. Yes, several ; but we will not talk of them till I have taken some opportunity of showing them to you, for probably you may never have seen any of them. Now try to repeat the names of all the metals, to me, in the order of their weight.

H. There is, first, *gold*.

G. Then, *quicksilver*, *lead*, *silver*.

H. *Copper*, *iron*, *tin*.

T. Very right. Now I must tell you of an odd fancy, that chemists have had of christening these metals by the names of the heavenly bodies. They have called gold, *Sol* or the Sun.

G. That is suitable enough to its color and brightness.

H. Then silver should be the moon, for I have heard moonlight called of a silvery hue.

T. True ; and they have named it so. It is *Luna*. Quicksilver is *Mercury*, so named, probably, from its great propensity to dance and jump about ; for *Mercury*, you know, was very nimble.

G. Yes ; he had wings to his heels.

T. Copper is *Venus*.

G. *Venus* ! Surely it is scarcely beautiful enough for that.

T. But they had disposed of the most beautiful ones before. Iron is *Mars*.

H. That is right enough, because swords are made of iron.

T. True. Then tin is *Jupiter*, and lead *Saturn*, I suppose only to make out the number. Yet the dulness of lead might be thought to agree with that planet which is most remote from the sun.* These names, childish as they may seem, are worth remembering, since chemists and physicians still apply them to many preparations of the various metals. You will probably often hear of *martial*, *lunar*, *mercurial*, and *saturnine* ; and you may now know what they mean.

G. I think the knowledge of metals seems

* [The planet Herschel, Georgium Sidus, or Uranus, is the furthest from the Sun, of all the known planets, and that was discovered in 1781, about the time this account was written.—AM. ED.]

more useful than all you have told us about plants.

T. I don't know that. Many nations make no use, at all, of metals, but there are none which do not owe a great part of their subsistence to vegetables. However, without inquiring what parts of natural knowledge are *most* useful, you may be assured of this, that all are useful in some degree or other; and there are few things that give one man greater superiority over another, than the extent and accuracy of his knowledge in these particulars. One person passes all his life upon the earth, a stranger to it; while another finds himself at home every where.

WHAT ANIMALS ARE MADE FOR.

PRAY, papa, (said *Sophia*, after she had been a long while teased with the flies that buzzed about her ears, and settled on her nose and forehead as she sat at work,) Pray, what were flies made for?

For some good, I dare say, (replied her papa.)

S. But I think they do a great deal more harm than good, for I am sure they plague me sadly; and in the kitchen they are so troublesome, that the maids can hardly do their work for them.

P. Flies eat up many things, that would otherwise corrupt and become loathsome; and they serve for food to birds, spiders, and many other animals.

S. But we could clean away every thing that was offensive, without their help ; and as to their serving for food, I have seen whole heaps of them lying dead in a window, without seeming to have done good to any thing.

P. Well then. Suppose a fly capable of thinking ; would he not be equally puzzled to find out what men were good for ? This great two-legged monster, he might say, instead of helping us to live, devours more food at a meal than would serve a whole legion of flies. Then he kills us, by hundreds, when we come within his reach ; and I see him destroy and torment all other animals too. And when he dies, he is nailed up in a box, and put a great way under ground, as if he grudged doing any more good after his death, than when alive. Now, what would you answer to such a reasoning fly ?

S. I would tell him he was very impertinent for talking so of his betters ; for that he and all other creatures were made for the use of man, and not man for theirs.

P. But would you tell him true ? You have just been saying, that you could not find out, of what use flies were to us ; whereas, when they suck our blood, there is no doubt that we are of use to them.

S. It is that which puzzles me.

P. There are many other animals, which we call *noxious*, and which are so far from being useful to us, that we take all possible pains to get rid of them. More than that, there are vast tracts

of the earth where few or no men inhabit, which are yet full of beasts, birds, insects, and all living things. These certainly do not exist there for his use alone. On the contrary, they often keep man away.

S. Then what are they made for ?

P. They are made to be happy. It is a manifest purpose of the Creator, to give being to as much life as possible, for life is enjoyment, to all creatures in health and in possession of their faculties. Man surpasses other animals, in his powers of enjoyment, and he has prospects in a future state which they do not share with him. But the Creator equally desires the happiness of all his creatures, and looks down with as much benignity, upon these flies that are sporting around us, as upon ourselves.

S. Then we ought not to kill them, if they are so troublesome.

P. I do not say that. We have a right to make a reasonable use of all animals, for our advantage, and also to free ourselves from such as are hurtful to us. So far, our superiority over them may fairly extend. But we should never abuse them for our mere amusement, nor take away their lives, wantonly. Nay, a good-natured man will rather undergo a *little* inconvenience, than take away from a creature all that it possesses. An infant may destroy life, but all the kings upon earth, cannot restore it. I remember reading of a good-tempered old gentleman, who, having been a long time plagued with a great fly that buzzed

about his face all dinner-time, at length, after many efforts, caught it. Instead of crushing it to death, he held it carefully in his hand, and opening the window, "Go, (said he,) get thee gone, poor creature; I won't hurt a hair of thy head; surely the world is wide enough for thee and me."

S. I should have loved that man.

P. One of our poets has written some very pretty lines, to a fly, that came to partake with him of his wine. They begin,

"Bee, curious, thirsty fly,
 Drink with me, and drink as I;
 Welcome freely to my cup,
 Could'st thou sip and sip it up."

S. How pretty! I think they will almost make me love flies. But pray, papa, do not animals destroy one another?

P. They do indeed. The greatest part of them only live by the destruction of life. There is a perpetual warfare going on, in which the stronger prey upon the weaker, and in their turns are the prey of those which are a degree stronger than themselves. Even the innocent sheep, with every mouthful of grass, destroys hundreds of small insects. In the air we breathe, and the water we drink, we give death to thousands of invisible creatures.

S. But is not that very strange? If they were created to live and be happy, why should they be destroyed so fast?

P. They are destroyed no faster than others are produced ; and if they enjoyed life while it lasted, they have had a good bargain. By making animals the food of animals, Providence has filled up every chink, as it were, of existence. You see these swarms of flies. During all the hot weather, they are continually coming forth from the state of eggs and maggots, and as soon as they get the use of wings, they roam about, and fill every place in search of food. Meantime, they are giving sustenance to the whole race of spiders ; they maintain all the swallow tribe, and contribute greatly to the support of many other small birds ; and even afford many a delicate morsel to the fishes. Their own numbers, however, seem scarcely diminished, and vast multitudes live on, till the cold weather comes and puts an end to them. Were nothing to touch them, they would probably become so numerous, as to starve each other. As it is, they are full of enjoyment, themselves, and afford life and enjoyment to other creatures, which, in their turn, supply the wants of others.

S. It is no charity, then, to tear a spider's web in pieces in order to set a fly at liberty.

P. None at all ; no more than it would be to demolish the traps of a poor Indian hunter, who depended upon them for his dinner. They both act as Nature directs them. Shall I tell you a story ?

S. O yes ! pray do.

P. A venerable Bramin, who had never in his days eaten any thing but rice and milk, and held

it the greatest of crimes to shed the blood of any thing that had life, was one day meditating on the banks of the Ganges. He saw a little bird on the ground picking up ants as fast as he could swallow. Murderous wretch! cried he, what scores of lives are sacrificed to one gluttonous meal of thine! Presently a sparrow-hawk pouncing down, seized him in his claws, and flew off with him. The Bramin at first was inclined to triumph over the little bird; but, on hearing his cries, he could not help pitying him. Poor thing, said he, thou art fallen into the clutches of thy tyrant! A stronger tyrant, however, took up the matter; for a falcon in mid-air darting on the sparrow-hawk, struck him to the ground, with the bird lifeless in his talon. Tyrant against tyrant, thought the Bramin, is well enough. The falcon had not finished tearing his prey, when a lynx, stealing from behind the rock on which he was perched, sprung on him, and having strangled him, bore him to the edge of a neighboring thicket, and began to suck his blood. The Bramin was attentively viewing this new display of retributive justice, when a sudden roar shook the air, and a huge tiger, rushing from the thicket, came like thunder on the lynx. The Bramin was near enough to hear the crashing bones, and was making off in great terror, when he met an English soldier, armed with his musket. He pointed eagerly to the place where the tiger was making his bloody repast. The soldier levelled his gun, and laid the tiger dead. Brave fellow! exclaimed

the Bramin. I am very hungry, said the soldier, can you give me a beef-steak? I see you have plenty of cows here. Horrible! cried the Bramin; what! I kill the sacred cows of Brama! Then kill the next tiger yourself, said the soldier.

ON EARTHS AND STONES.

Tutor—George—Harry.

HARRY. I wonder what all this heap of stones is for.

George. I can tell. It is for the lime-kiln; do n't you see it just by?

H. O yes, I do. But what is to be done to them there?

G. Why, they are to be burned into lime; do n't you know that?

H. But what is lime, and what are its uses?

G. I can tell you one; they lay it on the fields for manure. Do n't you remember, we saw a number of little heaps of it, that we took for sheep at a distance, and wondered they did not move? However, I believe we had better ask our tutor about it. Will you please, sir, to tell us somewhat about lime?

Tutor. Willingly. But suppose, as we talked about all sorts of metals some time ago, I should now give you a lecture about stones and earths of all kinds, which are equally valuable, and much more common, than metals.

G. Pray do, sir.

H. I shall be very glad to hear it.

T. Well, then, in the first place, the ground we tread upon, to as great a depth as it has been dug, consists, for the most part, of matter of various appearance and hardness, called by the general name of *earths*. In common language, indeed, only the soft and powdery substances are so named, while the hard and solid are called *stone* or *rock* : but chemists use the same term for all : as, in fact, earth is only crumbled stone, and stone only consolidated earth.

H. What ! has the mould of my garden ever been stone ?

T. The black earth, or mould which covers the surface, wherever plants grow, consists mostly of parts of rotted vegetables, such as stalks, leaves, and roots, mixed with sand or loose clay ; but this only reaches a little way ; and beneath it you always come to a bed of gravel, or clay, or stone of some kind. Now these earths and stones are distinguished into several species, but principally into three, the properties of which make them useful to man for different purposes, and are therefore very well worth knowing. As you began with asking me about lime, I shall first mention that class of earths from which it is obtained. These have derived their name of calcareous from this very circumstance, *calx* being lime, in Latin ; and lime is got from all in the same way, by burning them in a strong fire. There are many kinds of calcareous earths. One of them is *marble* ; you know what that is.

G. O yes ! Our parlor chimney-piece and hearth are marble.

H. And so are the monuments in the church.

T. True. There are various kinds of it ; white, black, yellow, gray, mottled and veined with different colors ; but all of them are hard and heavy stones, admitting a fine polish, on which account they are much used in ornamental works.

G. I think statues are made of it.

T. Yes ; and where it is plentiful, columns and porticoes, and sometimes whole buildings. Marble is the luxury of architecture.

H. Where does marble come from ?

T. From a great many countries. Great Britain produces some, but mostly of inferior kinds. What we use, chiefly comes from Italy. The Greek islands yield some fine sorts. That of Paros is of ancient fame for whiteness and purity, and the finest antique statues have been made of Parian marble.*

H. I suppose black marble will not burn into white lime.

T. Yes, it will. A violent heat will expel most of the coloring matter of marbles, and make them white. *Chalk* is another kind of calcareous earth. This is of a much softer consistence than marble ; being easily cut with a knife, and marking things on which it is rubbed. It is found in great beds in the earth ; and in some parts of England whole hills are composed of it.

* [Beautiful marble is found in abundance in many parts of the United States.—AM. ED.]

G. Are chalk and whiting the same ?

T. Whiting is made of the finer and purer particles of chalk washed out from the rest, and then dried in lumps. This, you know, is quite soft and crumbly. There are, besides, a great variety of stones in the earth, harder than chalk, but softer than marble, which will burn to lime, and are therefore called *limestones*. These differ much in color and other properties, and accordingly furnish lime of different qualities. In general, the harder the limestone is, the firmer is the lime made from it. Whole ridges of mountains, in various parts, are composed of limestone, and it is found plentifully in most of the hilly counties of England, to the great advantage of the inhabitants.

G. Will not oyster-shells burn into lime ? I think I have heard of oyster-shell lime.

T. They will ; and this is another source of calcareous earth. The shells of all animals, both land and sea, as oysters, muscles, cockles, crabs, lobsters, snails, and the like, and also egg-shells, of all kinds, consist of this earth ; and so does coral, which is formed by insects under the sea, and is very abundant in some countries. Vast quantities of shells are often found deep in the earth in the midst of chalk and limestone beds ; whence some have supposed that all calcareous earth is originally an animal production.

H. But where could animals enough ever have lived, to make mountains of their shells ?

T. That, indeed, I cannot answer. But there are sufficient proofs that our world must long have

existed in a very different state from the present. Well ; but besides these purer calcareous earths, it is very frequently found mingled in different proportions with other earths. Thus *marl*, which is so much used in manuring land, and of which there are a great many kinds, all consists of calcareous earth, united with clay, and sand ; and the more of this earth it contains, the richer manure it generally makes.

G. Is there any way of discovering it, when it is mixed in this manner with other things ?

T. Yes ; there is an easy and sure method of discovering the smallest portion of it. All calcareous earth has the property of dissolving in acids, and effervescing with them ; that is, they bubble and hiss when acids are poured upon them. You may readily try this at any time with a piece of chalk or an oyster-shell.

G. I will pour some vinegar upon an oyster-shell as soon as I get home. But now I think of it, I have often done so in eating oysters, and I never observed it to hiss or bubble.

T. Vinegar is not an acid strong enough to act upon a thing so solid as a shell. But aquafortis, or spirit of salt,* will do it at once ; and persons who examine the nature of fossils, always travel with a bottle of one of these acids, by way of a test of calcareous earth. Your vinegar will answer with chalk or whiting. This property of dissolving in acids, and what is called neutralizing them, or taking away their sourness, has caused many of

* [Aquafortis is nitric acid, spirit of salt is muriatic acid.—
AM. ED.]

the calcareous earths to be used in medicine. You know that sometimes our food turns very sour upon the stomach, and occasions the pain called the heart-burn, and other uneasy symptoms. In these cases, it is common to give chalk, or powdered shells, or other things of this kind, which afford relief by destroying the acid.

G. I suppose, then, *magnesia* is something of this sort, for I have often seen it given to my little sister when they said her stomach was out of order.

T. It is ; but it has some peculiar properties which distinguish it from other calcareous earths, and particularly it will not burn to lime. *Magnesia* is an artificial production, got from one of the ingredients in sea-water, called the bitter purging salt.

G. Pray what are the other uses of these earths?

T. Such of them as are hard stone, as the marbles and many of the limestones, are used for the same purposes as other stones. But their great use is in the form of lime, which is a substance of many curious properties that I will now explain to you. When fresh burnt it is called *quicklime*, on account of the heat and life, as it were, which it possesses. Have you ever seen a lump of it put into water ?

G. Yes, I have.

T. Were you not much surprised to see it swell and crack to pieces, with a hissing noise, and a great smoke and heat ?

G. I was, indeed. But what is the cause of this ? how can cold water occasion so much heat ?

T. I will tell you. The strong heat, to which calcareous earth is exposed, in making it lime, expels all the water it contained, (for all earths, as well as almost every thing else, naturally contain water,) and also a quantity of air which was united with it. At the same time, it imbibes a good deal of heat, which remains fixed in its substance, even after it has grown cool to the touch. If water be now added to this quicklime, it is drunk in again with such rapidity, as to crack and break the lime to pieces. At the same time, most of the heat it had imbibed is driven out again, and makes itself sensible by its effects, burning all the things that it touches, and turning the water to steam. This operation is called *slaking* of lime. The water in which lime is slaked dissolves a part of it, and acquires a very pungent harsh taste : this is used in medicine under the name of lime water. If, instead of soaking quicklime in water, it is exposed for some time to the air, it attracts moisture slowly, and by degrees falls to powder, without much heat or disturbance. But whether lime be slaked in water or air, it does not at first return to the state in which it was before, since it still remains deprived of its air ; and on that account, is still pungent and caustic. At length, however, it recovers this, also, from the atmosphere, and is then calcareous earth, as at first. Now, it is upon some of these circumstances, that the utility of lime depends. In the first place, its burning and corroding quality makes it useful to the tanner, in loosening all the hair from the hides ; and destroy-

ing the flesh and fat that adhere to them. And so in various other trades, it is used as a great cleanser and purifier.

H. I have a thought come into my head. When it is laid upon the ground, I suppose its use must be to burn up the weeds.

T. True ; that is part of its use.

G. But it must burn up the good grass, and corn, too.

T. Properly objected. But the case is, that the farmer does not sow his seeds, till the lime is rendered mild, by exposure to the air and weather, and is well mixed with the soil. And even then, it is reckoned a hot and forcing manure, chiefly fit for cold and wet lands. The principal use of lime, however, is as an ingredient in *mortar*. This, you know, is the cement by which bricks and stones are held together in building. It is made of fresh slaked lime and a proportion of sand well mixed together ; and generally some chopped hair is put into it. The lime binds with the other ingredients ; and, in length of time, the mortar, if well made, becomes as hard as, or harder than, stone.

G. I have heard of the mortar, in very old buildings, being harder and stronger than any made at present.

T. That is only on account of its age. Burning lime and making mortar are as well understood now, as ever ; but in order to have it excellent, the lime should be of a good quality, and used very fresh. Some sorts of lime have the property of making mortar which will harden under water,

whence it is much valued for bridges, locks, wharves, and the like.

G. Pray, is not plaster of Paris a kind of lime ? I know it will become hard, by only mixing water with it, for I have used it, to make casts of.

T. The powder you call plaster of Paris, is made of an earth named *gypsum*, of which there are several kinds. *Alabaster* is a stone of this sort, and hard enough to be used like marble. The gypseous earths are of the calcareous kind ; but they have naturally a kind of acid united with them, which prevents their effervescing on having acid poured on them. But they are distinguished by the property, that, after being calcined or burned in the fire, and reduced to powder, they will set into a solid body by the addition of water alone. This makes them very useful for ornamental plasters that are to receive a form or impression, such as the stucco for the ceilings of rooms.

Well ; we have said enough, about calcareous earths ; now to another class, the *Argillaceous*.

G. I think I know what those are. *Argilla* is Latin for *clay*.

T. True ; and they are also called *clayey* earths. In general, these earths are of a soft texture and a sort of greasy feel ; but they are peculiarly distinguished by the property of becoming sticky on being tempered with water, so that they may be drawn out, and worked into form like a paste. Have you ever, when you were a little boy, made a clay house ?

G. Yes, I have.

T. Then you well know the manner in which clay is tempered, and worked for this purpose.

H. Yes ; and I remember helping to make little pots and mugs of clay.

T. Then you imitated the potter's trade ; for all utensils of earthenware, are made of clays, either pure or mixed. This is one of the oldest arts among mankind, and one of the most useful. They furnish materials for building, too ; for bricks and tiles are made of these earths. But in order to be fit for these purposes, it is necessary that clay should not only be soft and ductile while it is forming, but capable of being hardened, afterwards. And this it is, by the assistance of fire. Pottery ware, and bricks, are burned with a strong heat in kilns, by which they acquire a hardness equal to that of the hardest stones.

G. I think I have read of bricks being baked by the sun's heat, alone, in very hot countries.

T. True ; and they may serve for building in climates where rain scarcely ever falls ; but heavy showers would wash them away. Fire seems to change the nature of clays ; for, after they have undergone its operation, they become incapable of returning again to a soft and ductile state. You might steep brick dust or pounded pots in water ever so long without making it hold together in the least.

G. I suppose there are many kinds of clays.

T. There are. Argillaceous earths differ greatly from each other in color, purity, and other

qualities. Some are perfectly white, as that of which tobacco-pipes are made. Others are blue, brown, yellow, and in short of all hues, which they owe to mixtures of other earths or metals. Those which burn red, contain a portion of iron. No clays are found perfectly pure ; but they are mixed with more or less of other earths. The common brick clays contain a large proportion of sand, which often makes them crumbly and perishable. In general, the finest earthenware is made of the purest and whitest clays ; but other matters are mixed, in order to harden and strengthen them. Thus *porcelain*, or *china*, is made with a clayey earth, mixed with a stone of a vitrifiable nature, that is, which may be melted into glass ; and the fine pottery called *queensware*, is a mixture of tobacco-pipe clay, and flints burned and powdered. Common *stoneware* is a coarse mixture of this sort. Some species of pottery are made with mixtures of burned and unburned clay ; the former, as I told you before, being incapable of becoming soft again with water like a natural clay.

H. Are clays of no other use than to make pottery of ?

T. Yes ; the richest soils are those which have a proportion of clay ; and marl, which I have already mentioned, as a manure, generally contains a good deal of it. Then, clay has the property of absorbing oil or grease, whence some kinds of it are used like soap for cleaning clothes. The substance called *Fuller's earth*, is a mixed

earth, of the argillaceous kind ; and its use in taking out the oil, which naturally adheres to wool, is so great, that it has been one cause of the superiority of some woollen cloths.

H. Then I suppose it is found in England.

T. Yes. There are pits of the best kind of it, near Woburn in Bedfordshire. A clayey stone, called soap rock, has exactly the feel and look of soap, and will even lather with water. The different kinds of slate, too, are stones of the argillaceous class, and very useful ones, for covering houses, and other purposes.

H. Are writing-slates like the slates used in covering houses ?

T. Yes ; but their superior blackness and smoothness make them show better the marks of the pencil.

G. You have mentioned something of sand and flints, but you have not told us what sort of earths they are.

T. I reserved that till I spoke of the third great class of earths. This is the *silicious* class, so named from *silex*, which is Latin for a flint-stone. They have also been called *vitriifiable* earths, because they are the principal ingredient in glass, named in Latin *vitrum*.

G. I have heard of flint glass.

T. Yes ; but neither flint, nor any other of the kind will make glass, even by the strongest heat, without some addition ; but this we will speak of by and by. I shall now tell you the principal properties of these earths. They are all very

hard, and will strike fire with steel, when in a mass large enough for the stroke. They mostly run into particular shapes, with sharp angles and points, and have a certain degree of transparency ; which has made them also be called *crystalline* earths. They do not in the least soften with water, like clays ; nor are they affected by acids, nor do they burn to lime, like the calcareous earths. As to the different kinds of them, *flint* has already been mentioned. It is a very common production, in some parts, and is generally met with in pebbles or round lumps. What is called the *shingle*, on the seashore, chiefly consists of it ; and the ploughed fields in some places are almost entirely covered with flint stones.

H. But do they not hinder the corn from growing ?

T. The corn, to be sure, cannot take root upon them ; but I believe it has been found, that the protection they afford to the young plants, which grow under them, is more than equal to the harm they do by taking up room. Flints are also frequently found imbedded in chalk under the ground. Those used in the Staffordshire potteries chiefly come from the chalk-pits near Gravesend. So much for flints. You have seen white pebbles, which are semi-transparent, and when broken, resemble white sugar-candy. They are common on the seashore and beds of rivers.

H. O yes ! We call them fire-stones. When they are rubbed together, in the dark, they send out great flashes of light, and have a particular smell.

T. True. The proper name of these is *quartz*. It is found in large quantities in the earth, and ores of metals are often imbedded in it. Sometimes it is perfectly transparent, and then it is called *crystal*.* Some of these crystals shoot into exact mathematical figures; and because many salts do the same, and are also transparent, they are called the *crystal* of such or such a salt.

G. Is not fine glass called crystal, too?

T. It is called so, by way of simile: thus we say of a thing, "it is as clear as crystal." But the only true crystal is an earth of the kind I have been describing. Well; now we come to *sand*; for this is, properly, only quartz, in a powdered state. If you examine the grains of sand, singly, or look at them with a magnifying-glass, you will find them all either entirely or partly transparent; and in some of the white shining sands the grains are all little bright crystals.

H. But most sand is brown or yellowish.

T. That is owing to some mixture, generally of the metallic kind. I believe I once told you, that all sands were supposed to contain a small portion of gold. It is more certain, that many of them contain iron.

G. But what could have brought this quartz into powder, so as to have produced all the sand in the world?

* [Quartz is the name of a species of minerals of which flint is one of the sub-species. Transparent or limpid quartz is called rock-crystal. Most minerals and metals are sometimes found in crystals; but few of them are transparent.—AM. ED.]

T. That is not very easy to determine. On the seashore, however, the incessant rolling of the pebbles, by the waves, is enough, in time, to grind them to powder; and there is reason to believe, that the greatest part of what is now dry land, was once sea, which may account for the vast beds of sand met with inland.

G. I have seen some stone so soft, that one might crumble it between one's fingers, and then it seemed to turn to sand.

T. There are several of this kind, more or less solid, which are chiefly composed of sand conglutinated by some natural cement. Such are called *sandstone*, or *freestone*; and are used for various purposes, in building, making grindstones, and the like, according to their hardness.

H. Pray, what are the common pebbles, that the streets are paved with? I am sure they strike fire enough, with the horses' shoes.

T. They are stones of the silicious kind, either pure, or mixed with other earths. One of the hardest and best for this purpose, is called *granite*, which is of various kinds and colors, but always consists of grains of different silicious earths cemented together. The streets of London are paved with granite, brought from Scotland. In some other stones, these bits of different earths, dispersed through the cement, are so large, as to look like plums in a pudding; whence they have obtained the name of *pudding-stones*.

G. I think there is a kind of stones that you have not yet mentioned—precious stones.

T. Most of these are of the silicious class ; —from the opaque or half-transparent, as agate, jasper, cornelian, and the like, to the perfectly clear and brilliant ones, as ruby, emerald, topaz, sapphire, &c.

G. Diamond, no doubt, is one of them.

T. So it has commonly been reckoned, and the purest of all ; but some late experiments have shown, that, though it is the hardest body in Nature, it may be totally dispersed into smoke and flame, by a strong fire ; so that mineralogists will now hardly allow it to be a stone at all, but class it among inflammable substances. The precious stones above mentioned, owe their different colors chiefly to some metallic mixture. They are, in general, extremely hard, so as to cut glass, and one another ; but diamond will cut all the rest.

G. I suppose they must be very rare.

T. Yes, and in this rarity, consists the greatest part of their value. They are, indeed, beautiful objects ; but the figure they make, in proportion to their expense, is so very small, that their high price may be reckoned one of the principal follies among mankind. What proportion can there possibly be, between the worth of a glittering stone, as big as a hazel-nut, and a magnificent house and gardens, or a large tract of country, covered with noble woods and rich meadows and corn-fields ? And as to the mere glitter, a large lustre of cut glass has an infinitely greater effect on the eye, than all the jewels of a sovereign prince.

G. Will you please to tell us, now, how glass is made ?

T. Willingly. The base of it is, as I said before, some earth of the silicious class. Those commonly used, are flint and sand. Flint is first burned or calcined, which makes it quite white, like enamel ; and it is then powdered. This is the material sometimes used for some very white glasses ; but sand is that commonly preferred, as being already in a powdery form. The white crystalline sands, are used for fine glass ; the brown or yellow for the common sort. As these earths will not melt by themselves, the addition, in making glass, is somewhat that promotes their fusion. Various things will do this ; but what is generally used, is an alkaline salt, obtained from the ashes of burnt vegetables. Of this, there are several kinds, as potash, pearlash, barilla, and kelp. The salt is mixed with the sand in a certain proportion, and the mixture then exposed in earthen pots to a violent heat, till it is thoroughly melted. The mass is then taken, while hot and fluid, in such quantities as are wanted, and fashioned by blowing and the use of shears and other instruments. You must see this done, some time, for it is one of the most curious and pleasing of all manufactures, and it is not possible to form an idea of the ease and dexterity with which glass is wrought, without an actual view.

H. I should like very much to see it, indeed.

G. Where is glass made in Great Britain ?

T. In many places. Some of the finest, in London ; but the coarser kinds generally where coals are cheap ; as at Newcastle and its neigh-

borhood, in Lancashire, at Stourbridge, Bristol, and South Wales. I should have told you, however, that in the finest and most brilliant glass, a quantity of the calx of lead is put, which vitrifies with the other ingredients, and gives the glass more firmness and density. The blue, yellow, and red glasses, are colored with the calxes of other metals. As to the common green glass, it is made with an alkali, that has a good deal of calcareous earth, remaining with the ashes of the plant. But to understand all the different circumstances of glass-making, one must have a thorough knowledge of chemistry.

G. I think making of glass is one of the finest inventions of human skill.

T. It is perhaps not of that capital importance that some other arts possess ; but it has been a great addition to the comfort and pleasure of life, in many ways. Nothing makes such clean and agreeable vessels, as glass, which has the quality of not being corroded by any kind of liquor, as well as that of showing its contents by its transparency. Hence, it is greatly preferable to the most precious metals, for drinking out of ; and, for the same reasons, it is preferred to every other material, for chemical utensils, where the heat to be employed, is not strong enough to melt it.

H. Then, glass windows !

T. Ay ; that is a most material comfort, in a climate like ours, where we so often wish to let in the light, and keep out the cold wind and rain. What could be more gloomy than to sit in the

dark, or with no other light, than came in through small holes, covered with oiled paper or bladder, unable to see any thing passing without doors ! Yet this must have been the case with the most sumptuous palaces, before the invention of window-glass, which was a good deal later than that of bottles and drinking-glasses.

H. I think looking-glasses are very beautiful.

T. They are, indeed, very elegant pieces of furniture, and very costly, too. The art of casting glass into large plates, big enough to reach from the bottom to the top of a room, was introduced into England from France. But the most splendid and brilliant manner of employing glass, is in lustres and chandeliers, hung round with drops, cut so as to reflect the light with all the colors of the rainbow. Some of the shops in London, filled with these articles, appear to realize all the wonders of an enchanted palace, in the Arabian Nights' Entertainments.

G. But are not spectacles and spying-glasses more useful than all these ?

T. I did not mean to pass them over, I assure you. By the curious invention of optical glasses, of various kinds, not only the natural defects of the sight have been remedied, and old age has been in some measure lightened of one of its calamities, but the sense of seeing has been wonderfully extended. The telescope has brought distant objects within our view, while the microscope has given us a clear survey of near objects, too minute for our unassisted eyes. By means

of both, some of the brightest discoveries of the moderns have been made ; so that glass has proved not less admirable in promoting science, than in contributing to splendor and convenience. Well ; I do n't know that I have any thing more, at present, to say, relative to the class of earths. We have gone through the principal circumstances belonging to their three great divisions, the *calcareous*, *argillaceous*, and *silicious*. You will remember, however, that most of the earths and stones offered by Nature are not in any one of these kinds perfectly pure, but contain a mixture of one or both the others. There is not a pebble that you can pick up, which would not exercise the skill of a mineralogist fully to ascertain its properties, and the materials of its composition. So inexhaustible is Nature !

THE COMPOUND-FLOWERED PLANTS.

Tutor—George—Harry.

GEORGE. Harry, can you blow off all these dandelion feathers at a blast ?

Harry. I will try.

G. See ; you have left almost half of them.

H. Can you do better ?

G. Yes ; look here.

H. There are still several left.

Tutor. A pretty child's play, you have got

there. Bring me one of the dandelion heads, and let us see if we can make no other use of it.

H. Here is a very full one.

T. Do you know what these feathers, as you call them, are ?

G. I believe they belong to the seeds.

T. They do, and they are worth examining. Look at this single one, through my magnifying-glass : you observe the seed, at the bottom, like the point of a dart. From it springs a slender hairy shaft, crowned by a most elegant spreading plume. You see, it is a complete arrow of Nature's manufacture.

G. How exact !

H. What a beautiful thing !

T. I am sure you see the use of it at once.

G. It is to set the seeds a flying with the wind.

H. And I suppose they sow themselves where they light.

T. They do. This is one of Nature's contrivances for *dissemination*, or that scattering of the seeds of plants, which makes them reach all the places proper for their growth. I dare say you have observed other plants, furnished with the same winged or feathered seeds.

H. O yes ! there is groundsel, and ragwort, and thistles.

G. In a windy day, I have seen the air all full of thistle down.

T. Very likely ; and for that reason, you never saw a new-made bank of earth, or a heap of dung in the fields, but it was presently covered with

thistles. These, and the other plants that have been named, belong to a very extensive class, which it is worth while being acquainted with. They are called the *compound-flower plants*.

G. Will you be so good as to give us a lecture about them?

T. With all my heart. Get me a dandelion in flower, and a thistle head, and a daisy. If you cannot find a common daisy, one of the great ox-eye daisies in the corn will do as well.

G. and H. Here they are.

T. Very well. All these are *compound flowers*; for if you will examine them narrowly, you will perceive that they consist of a number of little flowers, or *florets*, enclosed in a common cup, which cup is made of a number of scales lying upon each other like the tiles of a house.

G. I see it.

T. The florets are not all alike in shape. In the dandelion, you will observe that they consist of a tube, from which, at its upper end, proceeds a sort of strap-shaped tongue or fillet: in the thistle, they are tubular or funnel-shaped throughout: in the daisy, the centre ones, which form the *disk*, as it is called, are tubular, while those in the circumference, have a broad strap on one side, which altogether compose the *rays* of the flowers; whence this sort are called *radiated*. Now take the glass, and examine the florets singly. Can you discern their chives and pointals?*

* [Chives is a name sometimes applied to the stamens; and pointals, in like manner to the pistils.—A.M. Ed.]

G. I can.

T. You may remark that there are five chives to each, the tips of which unite into a tube, through which the pointal passes, having its summit double and curled back.

H. I can just make it out with a glass, but hardly with the naked eye.

T. It is from this circumstance of the tips of the chives growing together, that Linnæus has taken his distinction of the whole class ; and he has named it *Syngenesia*, from two Greek words having that signification. You will further observe that all these florets stand upon a stool, or receptacle, at the bottom of the flower, which is the cushion, left on the dandelion stalk after the seeds are blown away. Into this, the seeds are slightly stuck, which are one a-piece to every perfect or fertile floret. This is the general structure of the compound flowers.

H. Are all their seeds feathered ?

T. Not all. These of the daisy are not. But in a great many species they are.

H. I should have thought these were a very useful class of plants, by the pains Nature has taken to spread them, if you had not told me that thistles, and ragwort, and groundsel, were some of them.

T. And if you do not confine your idea of usefulness to what is serviceable to man, but extend it to the whole creation, you may safely conclude, from their abundance, that they must be highly useful in the general economy of Nature. In fact,

no plants feed a greater number of insects, and none are more important to the small birds, to whom they furnish food, by their seeds, and a fine warm down, for lining their nests. On the approach of winter, you may see whole flocks of linnets and gold-finches pecking among the thistles ; and you know that groundsel is a favorite treat, to birds in a cage. To man, however, they are, for the most part, troublesome and unsightly weeds. Burdock, thistles, and yarrow, overrun his hedge banks ; dandelion, and hawkweeds, which much resemble them, fill his meadows ; the tall and branching ragwort, and blue succory, cumber his pastures ; and wild camomile, ox eye, and corn marigold, choke up his corn-fields. These plants, in general, have a bitter nauseous taste, so that no cattle will touch them. Daisies, I believe, are the chief exception.

G. But some of them, I suppose, are useful to man.

T. Yes, several, and in various ways. Some, that have milky bitter juices, are employed in medicine, for purifying the blood and removing obstructions. Of these, are dandelion, succory, and sowthistle. Many others, are bitter and strongly aromatic ; as camomile, wormwood, southernwood, feverfew, and tansy ; these are good for strengthening the stomach, and expelling worms. That capital ingredient in salad, lettuce, is of this class, and so is endive. Artichoke forms a very singular article of diet, for the part chiefly eaten, called the bottom, is the receptacle of the flower,

upon which the choke, or seeds with their feathers, is placed. It is said, that some of the larger species of thistles may be drest and eaten the same way. Then there is Jerusalem artichoke, which is the root of a species of sunflower, and when boiled, much resembles in taste an artichoke bottom. On the whole, however, a very small proportion of this class of plants, is used in food.

G. Are there no garden flowers belonging to them ?

T. Several ; especially of the autumnal ones. There are sunflowers of various kinds, which are the largest flowers the garden produces, though not the most sightly ; marigolds ; both the common, and the French and African, asters, China-asters, goldenrod, and chrysanthemums. Very few flowers of this class have an agreeable scent, and their shape is not the most pleasing ; but they have often gay colors, and make a figure in the garden when other things are over. Well ; this is most that I recollect, worth noticing, of the compound-flowered plants. They are a difficult class to make out botanically, though pretty easily known from each other by sight. I will take care to point out to you the principal of them, that we meet with in our walks, and you must get acquainted with them.

TRAVELLERS' WONDERS.

ONE winter's evening, as *Captain Compass* was sitting by the fireside, with his children all round him, little Jack said to him, Papa, pray tell us some stories about what you have seen, in your voyages. I have been vastly entertained, whilst you were abroad, with *Gulliver's Travels*, and the adventures of *Sinbad the sailor* ; and I think, as you have gone round and round the world, you must have met with things as wonderful as they did. No, my dear, said the Captain, I never met with *Lilliputians* or *Brobdingnagians*, I assure you, nor ever saw the black loadstone mountain, or the valley of diamonds ; but, to be sure, I have seen a great variety of people, and their different manners and ways of living ; and if it will be any entertainment to you, I will tell you some curious particulars of what I observed. Pray do, papa, cried Jack and all his brothers and sisters ; so they drew close around him, and he began as follows :

Well, then ; I was once, about this time of the year, in a country where it was very cold, and the poor inhabitants had much ado to keep themselves from starving. They were clad partly in the skins of beasts, made soft and smooth by a particular art, but chiefly in garments made from the outer covering of a middle-sized quadruped, which they were so cruel as to strip off his back while he was alive. They dwelt in habitations, part of

which were sunk under ground. The materials were either stones, or earth hardened by fire ; and so violent in that country were the storms of wind and rain, that many of them covered their roofs all over with stones. The walls of their houses had holes to let in the light ; but to prevent the cold air and wet from coming in, they were covered with a sort of transparent stone, made artificially of melted sand or flints. As wood was rather scarce, I know not what they would have done for firing, had they not discovered, in the bowels of the earth, a very extraordinary kind of stone, which, when put among burning wood, caught fire and flamed like a torch.

Dear me, said Jack, what a wonderful stone ! I suppose it was somewhat like what we call fire stones, that shine so, when we rub them together. I do n't think *they* would burn, replied the Captain ; besides, these are of a darker color.

Well ; but their diet, too, was remarkable. Some of them ate fish that had been hung up in the smoke till they were quite dry and hard ; and along with it they ate either the roots of plants, or a sort of coarse black cake made of powdered seeds. These were the poorer class : the richer had a whiter kind of cake, which they were fond of daubing over with a greasy matter that was the product of a large animal among them. This grease they used, too, in almost all their dishes, and when fresh, it really was not unpalatable. They likewise devoured the flesh of many birds and beasts when they could get it ; and ate the

leaves and other parts of a variety of vegetables growing in the country, some absolutely raw, others variously prepared by the aid of fire. Another great article of food was the curd of milk, pressed into a hard mass, and salted. This had so rank a smell, that persons of weak stomachs often could not bear to come near it. For drink they made use of the water in which certain dry leaves had been steeped. These leaves, I was told, came from a great distance. They had likewise a method of preparing a liquor of the seeds of a grass-like plant, steeped in water, with the addition of a bitter herb, and then set to work or ferment. I was prevailed upon to taste it, and thought it at first nauseous enough, but in time, I liked it pretty well. When a large quantity of the ingredients is used, it becomes perfectly intoxicating. But what astonished me most, was their use of a liquor so excessively hot and pungent that it seems like liquid fire. I once got a mouthful of it by mistake, taking it for water, which it resembles in appearance ; but I thought it would instantly have taken away my breath. Indeed, people are not unfrequently killed by it ; and yet many of them will swallow it, greedily, whenever they can get it. This, too, is said to be prepared from the seeds above-mentioned, which are innocent and even salutary in their natural state, though made to yield such a pernicious juice. The strangest custom, that I believe prevails in any nation, I found here, which was, that some take a mighty pleasure in filling their mouths full

of stinking smoke ; and others, in thrusting a nasty powder up their nostrils.

I should think it would choke them, said Jack. It almost did me, answered his father, only to stand by while they used it ; but use, it is truly said, is second nature.

I was glad enough, to leave this cold climate ; and about half a year after, I fell in with a people enjoying a delicious temperature of air, and a country full of beauty and verdure. The trees and shrubs were furnished with a great variety of fruits, which, with other vegetable products, constituted a large part of the food of the inhabitants. I particularly relished certain berries, growing in bunches, some white and some red, of a very pleasant sourish taste, and so transparent, that one might see the seeds at their very centre. Here were whole fields full of extremely odoriferous flowers, which they told me were succeeded by pods bearing seeds, that afforded good nourishment to man and beast. A great variety of birds enlivened the groves and woods : among which I was entertained with one, that, without any teaching, spoke almost as articulately as a parrot, though indeed it was all the repetition of a single word. The people were tolerably gentle and civilized, and possessed many of the arts of life. Their dress was very various. Many were clad only in a thin cloth made of the long fibres of the stalk of a plant cultivated for the purpose, which they prepared by soaking in water, and then beating with large mallets. Others wore cloth wove

from a sort of vegetable wool, growing in pods upon bushes. But the most singular material was a fine glossy stuff, used chiefly by the richer classes, which, as I was credibly informed, is manufactured out of the webs of caterpillars ; a most wonderful circumstance, if we consider the immense number of caterpillars necessary to the production of so large a quantity of the stuff as I saw used. This people are very fantastic in their dress, especially the women, whose apparel consists of a great number of articles impossible to be described, and strangely disguising the natural form of the body. In some instances, they seem very cleanly ; but in others, the Hottentots can scarce go beyond them ; particularly in the management of their hair, which is all matted and stiffened with the fat of swine and other animals, mixed up with powders of various colors and ingredients. Like most Indian nations, they use feathers in the headdress. One thing surprised me much, which was, that they bring up in their houses an animal of the tiger kind, with formidable teeth and claws, which, notwithstanding its natural ferocity, is played with and caressed, by the most timid and delicate of their women.

I am sure I would not play with it, said Jack.

You might chance to get an ugly scratch, if you did, said the Captain.

The language of this nation, seems very harsh and unintelligible to a foreigner, yet they converse, among one another, with great ease and quickness. One of the oddest customs, is that which men use

on saluting each other. Let the weather be what it will, they uncover their heads, and remain uncovered for some time, if they mean to be extraordinarily respectful.

Why, that 's like pulling off our hats, said Jack. Ah, ha ! papa, cried Betsy, I have found you out. You have been telling us of our own country, and what is done at home, all this while. But, said Jack, we don't burn stones, nor eat grease and powdered seeds, nor wear skins and caterpillars' webs, nor play with tigers. No ? said the Captain ; pray what are coals, but stones ; and is not butter, grease ; and corn, seeds ; and leather, skins ; and silk, the web of a kind of caterpillar ; and may we not as well call a cat an animal of the tiger kind, as a tiger an animal of the cat kind ? So, if you recollect what I have been describing, you will find, with Betsy's help, that all the other wonderful things I have told you of, are matters familiar among ourselves. But I meant to show you, that a foreigner might easily represent every thing as equally strange and wonderful among us, as we could do with respect to his country ; and also to make you sensible that we daily call a great many things by their names, without ever inquiring into their nature and properties ; so that, in reality, it is only the names, and not the things themselves, with which we are acquainted.

A GLOBE LECTURE.

Papa—Lucy.

PAPA. You may remember, Lucy, that I talked to you, some time ago, about the earth's motion round the sun.

LUCY. Yes, papa ; and you said you would tell me, at another time, somewhat about the other planets.

P. I mean, some day, to take you to the lecture of an ingenious philosopher, who has contrived a machine that will give you a better notion of these things, in an hour, than I could, by mere talking, in a week. But it is now my intention, to make you better acquainted with this globe, which we inhabit, and which, indeed, is the most important to us. Cast your eyes upon this little ball. You see it is a representation of the earth, being covered with a painted map of the world. This map is crossed with lines, in various directions ; but all you have to observe, relative to what I am going to talk about, is the great line across the middle, called the *equator*, or *equinoctial line*, and the two points, at top and bottom, called the *poles*, of which the uppermost is the northern, the lowermost the southern.

L. I see them.

P. Now, the sun, which illuminates all the parts of this globe, by turns, as they roll round,

before it, shines directly upon the equator, but darts its rays aslant towards the poles ; and this is the cause of the great heat perceived in the middle regions of the earth, and of its gradual diminution as you proceed from them on either side towards the extremities. To use a familiar illustration, it is like a piece of meat, roasting before a fire, the middle part of which is liable to be overdone, while the two ends are raw.

L. I can comprehend that.

P. From this simple circumstance, some of the greatest differences on the surface of the earth, with respect to man, other animals, and vegetables, proceed ; for heat is the great principle of life and vegetation ; and where it most prevails, provided it be accompanied with the due moisture, Nature is most replenished with all sorts of living and growing things. In general, then, the countries lying on each side of the equator, forming a broad belt round the globe, between the two circles called the *tropics*, and denominated the *torrid zone*, are rich and exuberant in their products, to a degree much superior to what we see in our climates. Trees, and other plants, shoot to a vast size, and are clothed in perpetual verdure, and loaded with flowers of the gayest colors and sweetest fragrance, succeeded by fruits of high flavor or abundant nutriment. The insect tribe is multiplied, so as to fill the air, and many of them astonish us by their size, and extraordinary forms, and the splendor of their hues. The

ground is alive with reptiles, some harmless, some armed with deadly poisons.

L. O ! but I should not like that at all.

P. The birds, however, decked in the gayest plumage conceivable, must give unmixed delight : and a tropical forest, filled with parrots, macaws, and peacocks, and enlivened with the gambols of monkeys and other nimble quadrupeds, must be a very amusing spectacle. The largest of quadrupeds, too, the elephant, the rhinoceros, and the hippopotamus, are natives of these regions ; and not only those sublime and harmless animals, but the terrible lion, the cruel tiger, and all the most ravenous beasts of prey, are here found in their greatest bulk and fierceness.

L. That would be worse than the insects and reptiles.

P. The sea, likewise, is filled with inhabitants of an immense variety of size and figure : not only fishes, but tortoises, and all the shelly tribes. The shores are spread with shells, of a beauty unknown to our coasts, for it would seem as if the influence of the solar heat penetrated into the farthest recesses of Nature.

L. How I should like to ramble on the seaside, there !

P. But the elements, too, are there upon a grand and terrific scale. The sky either blazes with intolerable beams, or pours down rain in irresistible torrents. The winds swell to furious hurricanes, which often desolate the whole face of Nature in a day. Earthquakes rock the ground,

and sometimes open it in chasms, which swallow up entire cities. Storms raise the waves of the ocean into mountains, and drive them in a deluge to the land.

L. Ah ! that would spoil my shell-gathering. These countries may be very fine, but I don't like them.

P. Well, then ; we will turn from them to the *temperate* regions. You will observe, on looking at the map, that these chiefly lie on the northern side of the tropics ; for on the southern side, the space is almost wholly occupied by sea. Though geographers have drawn a boundary-line between the torrid and temperate zones, yet Nature has made none ; and for a considerable space, on the borders, the diminution of heat is so gradual, as to produce little difference in the appearance of Nature. But, in general, the temperate *zones* or *belts* form the most desirable districts on the face of the earth. Their products are extremely various, and abound in beauty and utility. Corn, wine, and oil, are among their vegetable stores : the horse, the ox, and the sheep, graze their verdant pastures. Their seasons have the pleasing vicissitudes of summer and winter, spring and autumn. Though, in some parts, they are subject to excess of heat, and in others, of cold, yet they deserve the general praise of a mild temperature, compared to the rest of the globe.

L. They are the countries for me, then.

P. You *do* live in one of them, though the place we inhabit is situated so far to the north, that it

ranks rather among the cold countries than the warm ones. However, we have the good fortune to be a long way removed from those dreary and comfortless tracts of the globe, which lie about the poles, and are called the *frigid zones*. In these, the cheering influence of the sun gradually becomes extinct, and perpetual frost and snow take possession of the earth. Trees and plants diminish in number and size, till, at length, no vegetables are found, but some mosses and a few stunted herbs. Land animals are reduced to three or four species; reindeer, white bears, arctic foxes, and snow-birds. The sea, however, as it remains free from being frozen over, is all alive with the finny tribe. Enormous whales spout and gambol among the floating ice-islands, and herds of seals pursue the shoals of smaller fish, and harbor in the caverns of the rocky coasts.

L. Then I suppose these creatures have not much to do with the sun.

P. Nature has given them powers of enduring cold, beyond those of many other animals; and then the water is always warmer than the land, in cold climates; nay, at a certain depth, it is equally warm in all parts of the globe.

L. Well, but as I cannot go to the bottom of the sea, I desire to have nothing to do with these dismal countries. But do any men live there?

P. It is one of the wonderful things belonging to man, that he is capable of living in all parts of the globe where any other animals live. And as nothing relative to this earth is so important to

us, as the condition of human creatures in it, suppose we take a general survey of the different races of men who inhabit all the tracts we have been speaking of ?

L. Blacks, and whites, and all colors ?

P. If a black dog is as much a dog as a white one, why should not a black man be as much a man ? I know nothing that color has to do with mind. Well, then ; to go back to the equator. The middle or tropical girdle of the earth, which, by the ancients, was concluded to be uninhabitable, from its extreme heat, has been found, by modern discoveries, to be as well filled with men, as it is with other living creatures. And no wonder ; for life is maintained, here, at less cost than elsewhere. Clothes and fuel are scarcely at all necessary. A shed of bamboo, covered with palm-leaves, serves for a house ; food is the spontaneous product of Nature. The bread-fruit, the cocoa, the banana, and the plantain, offer their stores freely to the gatherer ; and if he takes the additional pains to plant a few yams, or sow a little Indian corn, he is furnished with never-failing plenty. Hence the inhabitants of many tropical countries, live nearly in what is called a state of Nature, without care or labor, using the gifts of Providence like the animals around them. The naked Indian, stretched at ease under the shade of a lofty tree, passes his hours in indolent repose, unless roused to temporary exertion by the passion of the chase, or the love of dancing, and other social sports.

L. Well ; that would be a charming life !

P. So the poet Thomson seemed to think, when he burst out into a rapturous description of the beauties and pleasures afforded by these favored regions. Perhaps you can remember some of his lines.

L. I will try.

——“ Thrown at gayer ease, on some fair brow,
Let me behold, by breezy murmurs cooled,
Broad o'er my head the verdant cedar wave,
And high palmettoes lift their graceful shade.
Or, stretched amidst these orchards of the sun,
Give me to drain the cocoa's milky bowl,
And from the palm to draw its freshening wine !”

P. Delightful ! Think, however, at what price they purchase this indolent enjoyment of life. In the first place, all the work that is done, is thrown upon the women, who are always most tyrannised over, the nearer a people approach to a state of Nature.

L. Oh ! horrible ! I am glad I do not live there.

P. Then, the mind, not having that spur to exertion which necessity alone can give, moulders in inaction, and becomes incapable of those advances in knowledge and vigor, which raise and dignify the human character.

L. But that is the same with lazy people, every where.

P. True. The excessive heat, however, of these countries, seems, of itself, to relax the mind, and unfit it for its noblest exertions. And

I question if a single instance could be produced, of an original inhabitant of the torrid zone, who has attained to eminence in the higher walks of science. It is their general character, to be gay, volatile, and thoughtless ; subject to violent passions, but commonly mild and gentle ; fond of society and amusements ; ingenious in little arts, but incapable of great or long-continued efforts. They form a large portion of the human race, and, probably, not the least happy. You see what vast tracts of land lie within this division ; most of Africa and South America, [and part of North America ;] all the great islands of Asia, and two of its large peninsulas. Of these, the Asiatic part, is the most populous and civilized ; indeed, many of its nations are as far removed from a state of Nature, as we are, and their constitutional indolence has been completely overcome, by necessity. The clothing of those, who are in a civilized state, is mostly made of cotton, which is a natural product of these climates. Their food is chiefly of the vegetable kind ; and, besides the articles already mentioned, consists much of rice.

L. Are the people all black ?

P. Yes ; entirely or nearly so.

L. I suppose that is owing to the heat of the sun.

P. Undoubtedly ; for we find all the shades, from jet black to tawny, and at length white, as we proceed from the equator towards the poles. The African negroes, however, from their curled

woolly hair, and their flat features, have been supposed an originally distinct race of mankind. The East Indian blacks, though under an equally hot climate, have long flowing hair, and features not different from their fairer neighbors. Almost all of these nations, are subject to despotic governments. In religion, they are mostly pagans, with a mixture of Mohammedans.

L. I think we have had enough, about these people.

P. Well, then ; look again on the globe, to the northern side of the tropics, and see what a tour we shall give you among the inhabitants of the north temperate zone. Here are all the most famous places on the earth ; rich, populous countries, renowned, at different periods, for arts and arms. Here is the greatest part of Asia, a little of Africa, [and nearly] all Europe and North America.

L. I suppose, however, there must be great differences, both in the climate, and the way of life, in so many countries.

P. Extremely great. The southern parts, partake much of the character of the tropical regions. The heat is still excessive, and renders exertion painful ; whence the people have, in general, been reckoned soft, effeminate, and voluptuous. Let us, however, look at them a little closer. Here is the mighty empire of China, swarming with people, to such a degree, that, notwithstanding its size and fertility, the inhabitants are obliged to exert the greatest industry, to procure the

necessaries of life. Nearly in a line with it, are, the Mogul's empire, the kingdom of Persia, and the Turkish dominions in Asia ; all warm climates, abounding in products of use and beauty, and inhabited by numerous and civilized people. Here, stretches out the great peninsula of Arabia, for the most part a dry and desert land, overspread with burning sands, only to be crossed by the patient camel. Wild and ferocious tribes of men wander over it, chiefly supported by their herds and flocks, and by robbery, which they practise on all travellers who fall in their way. A tract somewhat similar, though in a colder climate, is the vast country of Tartary, stretching like a belt from east to west across the middle of Asia ; over the immense plains and deserts of which, a number of independent tribes continually roam, fixing their movable habitations in one part or another, according as they afford pasturage to their herds of cattle and horses. These men have for many ages lived in the same simple state, unacquainted as well with the arts, as the vices, of civilized nations.

L. Well, I think it must be a very pleasant life to ramble about, from place to place, and change one's abode, according to the season.

P. The Tartars think so ; for the worst wish they can find for a man, is, that he may live in a house, and work like a Russian. Now look at Europe. See what a small figure it makes, on the surface of the globe, as to size ; and yet it has, for many ages, held the first place in knowledge,

activity, civilization, and all the qualities that elevate man among his fellows. For this, it is much indebted to that temperature of climate, which calls forth all the faculties of man, in order to render life comfortable, yet affords enough of the beauties of Nature, to warm the heart and exalt the imagination. Men, here, earn their bread with the sweat of their brow. Nature does not drop her fruits into their mouths, but offers them, as the price of labor. Human wants are many. Clothes, food, lodging, are all objects of much care and contrivance, but the human powers, fully exerted, are equal to the demand ; and nowhere are enjoyments so various and multiplied. What the land does not itself yield, its inhabitants, by their active industry, procure from the remotest parts of the globe. When we drink tea, we sweeten the infusion of a Chinese herb with the juice of a West Indian cane ; and your common dress is composed of materials collected from the equator to the frigid zone. Europeans render all countries and climates familiar to them ; and every where they assume a superiority over the less enlightened or less industrious natives.

L. Then Europe for me, after all. But is not America as good ?

P. That part of North America which has been settled by Europeans, is only another Europe, in manners and civilization. But the original inhabitants of that extensive country, were bold and hardy barbarians, and many of them continue so, to this day. So much for the temperate zone,

which contains the prime of mankind. They differ, extremely, however, in governments, laws, customs, and religions. The Christian religion has the credit of reckoning among its votaries, all the civilized people of Europe and America. The Mohammedan, possesses all the nearer parts of Asia and the north of Africa ; but China, Japan, and most of the circumjacent countries, profess different forms of paganism. The East, in general, is enslaved to despotism ; but the nobler West enjoys, in most of its states, more or less of freedom.

As to the frigid zone, its few inhabitants can but just sustain a life, little better than that of the brutes. Their faculties are benumbed by the climate. Their chief employment, is the fishery or the chase, by which they procure their food. The tending of herds of reindeer, in some parts, varies their occupations and diet. They pass their long winters in holes dug under ground, where they doze out most of their time, in stupid repose.

L. I wonder any people should stay in such miserable places.

P. Yet none of the inhabitants of the globe seem more attached to their country and way of life. Nor do they, indeed, want powers to render their situation tolerably comfortable. Their canoes, and fishing and hunting tackle, are made with great ingenuity ; and their clothing is admirably adapted for protection against the rigors of cold. They are not without some amusements, to cheer the gloom of their condition ; but they

are abjectly superstitious, and given to fear and melancholy.

L. If I had my choice, I would rather go to a warmer than a colder country.

P. Perhaps the warmer countries are pleasanter ; but there are few advantages, which are not balanced by some inconveniences ; and it is the truest wisdom, to be contented with our lot, and endeavor to make the best of it. One great lesson, however, I wish you to derive from this globe lecture. You see that no part of the world is void of our human brethren, who, amidst all the diversities of character and condition, are yet all *men*, filling the station in which their Creator has placed them. We are too apt to look at the differences of mankind, and to undervalue all those who do not agree with us, in matters that we think of high importance. But who are we, and what cause have we to think ourselves right, and all others wrong ? Can we imagine that hundreds of millions of our species, in other parts of the world, are left destitute of what is essential to their well-being, while a favored few, like ourselves, are the only ones who possess it ? Having all a common nature, we must necessarily agree in more things than we differ. The road to virtue and happiness is alike open to all. The mode of pursuit is various ; the end is the same.

ANIMALS, AND THEIR COUNTRIES.

O'ER Afric's sands the tawny Lion stalks :
 On Phasis' banks the graceful Pheasant walks :
 The lonely Eagle builds on Kilda's shore :
 Germania's forests feed the tusky Boar :
 From Alp to Alp the sprightly Ibex bounds :
 With peaceful lowings Britain's isle resounds :
 The Lapland peasant o'er the frozen meer
 Is drawn in sledges by his swift Reindeer.
 The River-Horse and scaly Crocodile
 Infest the reedy banks of fruitful Nile :
 Dire Dipsas hiss o'er Mauritania's plain,
 And Seals and Spouting Whales sport in the
 Northern Main.

THE CRUCIFORM-FLOWERED PLANTS.

Tutor—George—Harry.

GEORGE. How rich yon field looks with its yellow flowers. I wonder what they can be.

Tutor. Suppose you go and see if you can find out ; and bring a stalk of the flowers with you.

G. (returning.) I know now ; they are turnips.

T. I thought you could make it out, when you came near them. These turnips are left for seed, which is the reason why you see them

run to flower. Commonly, they are pulled up sooner.

Harry. I should not have thought a turnip had so sweet a flower.

G. I think I have smelt others, like them. Pray, sir, what class of plants do they belong to?

T. To a very numerous one, with which it is worth your while to get acquainted. Let us sit down, and examine them. The petal, you observe, consists of four flat leaves set opposite to each other, or crosswise. From this circumstance, the flowers have been called *cruciform*. As most plants, with flowers of this kind, bear their seeds in pods, they have likewise been called the *siliquose* plants, *siliqua* being the Latin for a pod.

G. But the papilionaceous flowers bear pods, too.

T. True; and therefore the name is not a good one. Now pull off the petals one by one. You see they are fastened by long claws within the flower-cup. Now count the chives.

H. There are six.

G. But they are not all of the same length—two are much shorter than the rest.

T. Well observed. It is from this, that Linnaeus has formed a particular class for the whole tribe, which he calls *tetradynamia*, a word implying *four powers* or the *power of four*; as if the four longer chives were more perfect and efficacious than the two shorter; which, however, we do not know to be the case. This superior length of four chives, is conspicuous in most plants of this

tribe, but not in all. They have, however, other resemblances, which are sufficient to constitute them a natural family; and accordingly, all botanists have made them such.

The flowers, as I have said, have in all of them four petals placed crosswise. The calyx also consists of four oblong and hollow leaves. There is a single pistil, standing on a seed-bud; which turns either into a long pod, or a short round one called a pouch; and hence are formed the two great branches of the family, the podded and the pouched. The seed-vessel has two valves or external openings, with a partition between. The seeds are small and roundish, attached alternately to both sutures or joinings of the valves.

Do you observe all these circumstances?

G. and H. We do.

T. You shall examine them more minutely in a larger plant of the kind. Further, almost all of these plants have somewhat of a biting taste, and also a disagreeable smell in their leaves, especially when decayed. A turnip field you know smells but indifferently; and cabbage, which is one of this class, is apt to be remarkably offensive.

H. Yes; there is nothing worse than rotten cabbage leaves.

G. And the very water in which they are boiled, is enough to scent a whole house.

T. The flowers, however, of almost all the family are fragrant, and some remarkably so. What do you think of wall-flowers and stocks?

H. What, are they of this kind ?

T. Yes ; and so is candy-tuft, and rocket.

H. Then they are not to be despised.

T. No ; and especially as not one of the whole class is, I believe, poisonous ; but, on the contrary, many of them afford good food for man and beast. Shall I tell you about the principal of them ?

G. Pray do, sir.

T. The pungency of taste which so many of them possess, has caused them to be used for salad herbs. Thus we have cress, water cress, and mustard ; to which might be added many more which grow wild, as lady's-smock, wild-rocket, hedge-mustard, and jack-by-the-hedge, or sauce-alone. Mustard, you know, is also greatly used for its seeds, the powder or flour of which, made into a sort of paste with salt and water, is eaten with many kinds of meat. Rape-seeds are very similar to them, and from both an oil is pressed out, of the mild or tasteless kind, as it is likewise from cole-seed, another product of this class. Scurvygrass, which is a pungent plant of this family, growing by the seaside, has obtained its name from being a remedy for the scurvy. Then there is horseradish, with the root of which I am sure you are well acquainted, as a companion to roast beef. Common radish, too, is a plant of this kind, which has a good deal of pungency. One sort of it, has a root like a turnip, which brings it near in quality to the turnip itself. This last plant, though affording a sweet and mild nutri-

ment, has naturally a degree of pungency and rankness.

G. That, I suppose, is the reason why turnip milk and butter have such a strong taste.

T. It is.

H. Then why do they feed cows with it ?

T. In this case, as in many others, quality is sacrificed to quantity. But the better use of turnips to the farmer is to fatten sheep and cattle. By its assistance, he is enabled to keep many more of these animals than he otherwise could find grass or hay for ; and the culture of turnips prepares his land for grain as well as, or better than could be done by letting it lie quite fallow. The turnip-husbandry, as it is called, is one of the capital modern improvements of agriculture.

G. I think I have heard that Norfolk is famous for it.

T. It is so. That country abounds in light sandy lands, which are peculiarly suitable to turnips. But they are now raised in many parts of the kingdom besides. Well ; but we must say somewhat more about cabbage, an article of food of very long standing. The original species of this is a seaside plant ; but cultivation has produced a great number of varieties well known in our gardens, as white and red cabbage, kale, colewort, brocoli, borecole, and cauliflower.

H. But the flower of cauliflower does not seem at all like that of cabbage or turnip.

T. The white head, called its flower, is not properly so, but consists of a cluster of imperfect

buds. If they are left to grow for seed, they throw out some spikes of yellow flowers like common cabbage. Brocoli heads are of the same kind. As to the head of white or red cabbage, it consists of a vast number of leaves, closing round each other, by which the innermost are prevented from expanding, and remain white, on account of the exclusion of the light and air. This part, you know, is most valued for food. In some countries they cut cabbage heads into quarters, and make them undergo a kind of acid fermentation : after which they are salted and preserved for winter food, under the name of sour-kROUT.

G. Cattle too, are sometimes fed with cabbage, I believe.

T. Yes, and large fields of them are cultivated for that purpose. They succeed best in stiff clayey soils, where they sometimes grow to an enormous bigness. They are given to milch kine, as well as to fattening cattle.

G. Do not they give a bad taste to the milk ?

T. They are apt to do so unless great care is taken to pick off all the decayed leaves.

Coleworts, which are a smaller sort of cabbage, are sometimes raised for feeding sheep and cattle. I think I have now mentioned most of the useful plants of this family, which, you see, are numerous and important. They both yield beef and mutton, and the sauce to them. But many of the species are troublesome weeds. You see how yonder corn is overrun with yellow flowers.

G. Yes. They are as thick as if they had been sown.

T. They are of this family, and called charlock, or wild mustard, or corn kale, which, indeed, are not all exactly the same things, though nearly resembling. These produce such plenty of seeds, that it is very difficult to clear a field of them if once they are suffered to grow till the seeds ripen. An extremely common weed in gardens and by road-sides, is shepherd's purse, which is a very good specimen of the pouch-bearing plants of this tribe, its seed-vessels being exactly the figure of a heart. Lady's-smock is often so abundant a weed in wet meadows as to make them all over white with its flowers. Some call this plant cuckoo flower, because its flowering is about the same time with the first appearance of that bird in the spring.

G. I remember some pretty lines in a song, about spring, in which lady's-smock is mentioned.

“When daisies pied, and violets blue,
And lady's-smocks all silver white ;
And cuckoo-buds of yellow hue
Do paint the meadows with delight.”

T. They are Shakspeare's. You see he gives the name of cuckoo-bud to some other flower, a yellow one, which appears at the same season. But still earlier than this time, walls and hedge-banks are enlivened by a very small white flower, called whitlow-grass, which is one of this tribe.

H. Is it easy to distinguish the plants of this family from one another ?

T. Not very easy, for the general similarity of the flowers is so great, that little distinction can be

drawn from them. The marks of the species are chiefly taken from the form and manner of growth of the seed-vessel, and we will examine some of them, by the descriptions in a book of botany. There is one very remarkable seed-vessel which probably you have observed in the garden. It is a perfectly round large flat pouch, which, after it has shed its seeds, remains on the stalk, and looks like a thin white bladder. The plant, bearing it, is commonly called honesty.

H. O ! I know it very well. It is put in winter flower-pots.

T. True. So much, then, for the tetradynami-ous or cruciform-flowered plants. You cannot well mistake them for any other class, if you remark the six chives, four of them, generally, but not always, longer than the two others ; the single pistil changing either into a long pod or a round pouch containing the seeds ; the four opposite petals of the flower, and four leaves of the calyx. You may safely make a salad of the young leaves wherever you find them ; the worst they can do to you is to bite your tongue.

THE COLONISTS.

COME, said *Mr. Barlow* to his boys, I have a new play for you. I will be the founder of a colony; and you shall be people of different trades and professions coming to offer yourselves to go with me. What are you, *A*?

A. I am a farmer, sir.

Mr. B. Very well! Farming is one chief thing we have to depend upon, so we cannot have too much of it. But you must be a working farmer, not a gentleman farmer. Laborers will be scarce, among us, and every man must put his own hand to the plough. There will be woods to clear, and marshes to drain, and a great deal of stubborn work to do.

A. I shall be ready to do my part, sir.

Mr. B. Well, then, I shall entertain you willingly, and as many more of your profession as you can bring. You shall have land enough, and utensils; and you may fall to work as soon as you please. Now for the next.

B. I am a miller, sir.

Mr. B. A very useful trade! The corn we raise, must be ground, or it will do us little good. But what will you do for a mill, my friend?

B. I suppose we must make one, sir.

Mr. B. True; but then you must bring with

you a millwright, for the purpose. As for millstones, we will take them out with us. Who is next ?

C. I am a carpenter, sir.

Mr. B. The most necessary man that could offer ! We shall find you work enough, never fear. There will be houses to build, fences to make, and all kinds of wooden furniture to provide. But our timber is all growing. You will have a deal of hard work to do in felling trees, and sawing planks, and shaping posts, and the like. You must be a field carpenter, as well as a house carpenter.

C. I will, sir.

Mr. B. Very well ; then I engage you, but you had better bring two or three able hands along with you.

D. I am a blacksmith, sir.

Mr. B. An excellent companion for the carpenter ! We cannot do without either of you ; so you may bring your great bellows and anvil, and we will set up a forge for you as soon as we arrive. But, by the by, we shall want a mason for that purpose.

E. I am one, sir.

Mr. B. That's well. Though we may live in log houses, at first, we shall want brick or stone work for chimneys, and hearths, and ovens, so there will be employment for a mason. But if you can make bricks and burn lime too, you will be still more useful.

E. I will try what I can do, sir.

Mr. B. No man can do more. I engage you. Who is next ?

F. I am a shoemaker, sir.

Mr. B. And shoes we cannot well do without. But can you make them, like Eumæus in the Odyssey, out of a raw hide ? for I fear we shall get no leather.

F. But I can dress hides, too.

Mr. B. Can you ? Then you are a clever fellow ; and I will have you, though I give you double wages.

G. I am a tailor, sir.

Mr. B. Well ; though it will be some time before we want holiday suits, yet we must not go naked ; so there will be work for the tailor. But you are not above mending, I hope, for we must not mind patching clothes, while we work in the woods.

G. I am not, sir.

Mr. B. Then I engage you, too.

H. I am a weaver, sir.

Mr. B. Weaving is a very useful art, but I question if we can find room for it in our colony for the present. We shall not raise either hemp or flax, for some time to come, and it will be cheaper for us to import our cloth, than to make it. In a few years, however, we may be very glad of you.

J. I am a silversmith and jeweller, sir.

Mr. B. Then, my friend, you cannot go to a worse place than a new colony to set up your trade in. You will break us, or we shall starve you.

J. But I understand clock and watchmaking, too.

Mr. B. That is somewhat more to our purpose, for we shall want to know how time goes. But I think we cannot give you sufficient encouragement, for a long while to come. For the present, you had better stay where you are.

K. I am a barber and hair-dresser, sir.

Mr. B. Alas, what can we do with you ? If you will shave our men's rough beards once a week, and crop their hair once a quarter, and be content to help the carpenter, or follow the plough the rest of your time, we shall reward you accordingly. But you will have no ladies and gentlemen to dress for a ball, or wigs to curl and powder for Sundays, I assure you. Your trade will not stand by itself, with us, for a great while to come.

L. I am a doctor, sir.

Mr. B. Then, sir, you are very welcome. Health is the first of blessings, and if you can give us that, you will be a valuable man indeed. But I hope you understand surgery as well as physic, for we are likely enough to get cuts, and bruises, and broken bones, occasionally.

L. I have had experience in that branch too, sir.

Mr. B. And if you understand the nature of plants, and their uses both as medicines and food, it will be a great addition to your usefulness.

L. Botany has been a favorite study with me, sir ; and I have some knowledge of chemistry, and the other parts of Natural History, too.

Mr. B. Then you will be a treasure to us, sir, and I shall be happy to make it worth your while to go with us.

M. I, sir, am a lawyer.

Mr. B. Sir, your most obedient servant. When we are rich enough to go to law, we will let you know.

N. I am a schoolmaster, sir.

Mr. B. That is a profession which I am sure I do not mean to undervalue ; and as soon as we have young folks in our colony, we shall be glad of your services. Though we are to be hard-working people, we do not intend to be ignorant, and we shall make it a point to have every one taught reading and writing, at least. In the mean time, till we have employment enough for you in teaching, you may keep the accounts and records of the colony ; and on Sundays, you may read prayers, for all that choose to attend upon you.

N. With all my heart, sir.

Mr. B. Then I engage you. Who comes here, with so bold an air ?

O. I am a soldier, sir ; will you have me ?

Mr. B. We are peaceable people, and I hope shall have no occasion to fight. We mean honestly to purchase our land from the natives, and to be just and fair in all our dealings with them. William Penn, the founder of Pennsylvania, followed that plan ; and when the Indians were at war with all the other European settlers, a person in a quaker's habit might pass through all their most ferocious tribes without the least in-

jury. It is my intention, however, to make all my colonists soldiers, so far as to be able to defend themselves if attacked, and that being the case, shall have no need of *soldiers by trade*.

P. I am a gentleman, sir ; and I have a great desire to accompany you, because I hear game is very plentiful in that country.

Mr. B. A gentleman ! And what good will you do to us, sir ?

P. O sir, that is not at all my intention. I only mean to amuse myself.

Mr. B. But do you mean, sir, that we should pay for your amusement ?

P. As to maintenance, I expect to be able to kill game enough for my own eating, with a little bread and garden-stuff, which you will give me. Then I will be content with a house somewhat better than the common ones ; and your barber shall be my valet, so I shall give very little trouble.

Mr. B. And pray, sir, what inducement can we have for doing all this for you ?

P. Why, sir, you will have the credit of having *one gentleman*, at least, in your colony.

Mr. B. Ha, ha, ha ! A facetious gentleman, truly ! Well, sir, when we are ambitious of such a distinction, we will send for you.

THE GOLDFINCH AND LINNET.

A GAUDY *Goldfinch*, pert and gay,
Hopping blithe from spray to spray,
Full of frolic, full of spring,
With head well plumed and burnished wing,
Spied a sober *Linnet* hen,
Sitting all alone,
And bowed, and chirped, and bowed again ;
And with familiar tone,
He thus the dame addressed,
As to her side he closely pressed.

“ I hope, my dear, I do n't intrude,
By breaking on your solitude ;
But it has always been my passion
To forward pleasant conversation ;
And I should be a stupid bird
To pass the fair without a word ;
I, who have been for ever noted
To be the sex's most devoted.
Besides, a damsel unattended,
Left unnoticed and unfriended,
Appears (excuse me) so forlorn,
That I can scarce suppose,
By any she that e'er was born,
'T would be the thing she chose.
How happy, then, I 'm now at leisure
To wait upon a lady's pleasure ;
And all this morn have nought to do
But pay my duty, love, to you.

“ What, silent !—Ah, those looks demure
And eyes of languor, make me sure
That in my random idle chatter
I quite mistook the matter !
It is not spleen or contemplation
That draws you to the cover ;
But ’t is some tender assignation :
Well !—who ’s the favored lover ?
I met hard by, in quaker suit,
A youth sedately grave and mute :
And from the maxim, like to like,
Perhaps the *sober youth* might strike.
Yes, yes, ’t is he, I ’ll lay my life,
Who hopes to get you for a wife.

“ But come, my dear, I know you ’re wise,
Compare and judge, and use your eyes.
No female yet could e’er behold
The lustre of my red and gold,
My ivory bill and jetty crest,
But all was done, and I was blest.
Come, brighten up, and act with spirit,
And take the fortune that you merit.”

He ceased,—*Linnetta* thus replied,
With cool contempt and decent pride :

“ ’T is pity, sir, a youth so sweet,
In form and manners so complete,
Should do an humble maid the honor
To waste his precious time upon her.
A poor forsaken she, you know,
Can do no credit to a beau ;

And worse would be the case,
If meeting one whose faith was plighted,
He should incur the sad disgrace
Of being slighted.

“ Now, sir, the *sober-suited youth*,
Whom you were pleased to mention,
To those small merits, sense, and truth,
And generous love, has some pretension.
And then, to give him all his due,
He sings, sir, full as well as you,
And sometimes can be silent too.
In short, my taste is so perverse,
And such my wayward fate,
That it would be my greatest curse,
To have a *Coxcomb* to my mate.”

This said, away she scuds,
And leaves *beau Goldfinch* in the suds.

HUMBLE LIFE.

MR. EVERARD—CHARLES, *walking in the fields.*

MR. EVERARD. Well, Charles, you seem to be in deep meditation. Pray, what are you thinking about?

Charles. I was thinking, sir, how happy it is for us, that we are not in the place of that poor weaver, whose cottage we just passed by.

Mr. E. It is very right to be sensible of all the

advantages that Providence has bestowed on us in this world, and I commend you for reflecting on them with gratitude. But what particular circumstance of comparison, between our condition and his, struck you most just now ?

Ch. O, almost every thing ! I could not bear to live in such a poor house, with a cold clay floor, and half the windows stopped with paper. Then how poorly he and his children are dressed ! and I dare say they must live as poorly too.

Mr. E. These things would be grievous enough to you, I do not doubt, because you have been accustomed to a very different way of living. But if they are healthy and contented, I don't know that *we* have much more to boast of. I believe the man is able to procure wholesome food for his family, and clothes and firing enough to keep them from suffering from the cold ; and nature wants little more.

Ch. But what a ragged barefooted fellow the boy at the door was !

Mr. E. He was ; but did you observe his ruddy cheeks, and his stout legs, and the smile he had upon his countenance ? It is my opinion, he would beat you in running, though he is half the headless ; and I dare say, he never cried because he did not know what to do with himself, in his life.

Ch. But, sir, you have often told me that the mind is the noblest part of man ; and these poor creatures, I am sure, can have no opportunity to improve their minds. They must be as ignorant as the brutes, almost.

Mr. E. Why so ? Do you think there is no knowledge to be got but from books ; or that a weaver cannot teach his children right from wrong ?

Ch. Not if he has never learned himself.

Mr. E. True ; but I hope the country we live in, is not so unfriendly to a poor man, as to afford him no opportunity of learning his duty to God and his neighbor. And as to other points of knowledge, necessity, and common observation, will teach him a good deal. But come ; let us go and pay them a visit, for I suppose you hardly think them human creatures.

[They enter the cottage.—Jacob, the weaver, at his loom. His wife spinning. Children of different ages.]

Mr. E. Good morning to you, friend ! Don't let us disturb you all, I beg of you. We have just step'd in to look at your work.

Jacob. I have very little to show you, gentlemen ; but you are welcome to look on. Perhaps the young gentleman never saw weaving before.

Ch. I never did.

Jac. Look here, then. These long threads are the warp. They are divided, you see, into two sets, and I pass my shuttle between them, which carries with it the cross threads, and that makes the weft.

[Explains the whole to him.]

Ch. Dear ! how curious ! And is all cloth made this way, papa ?

Mr. E. Yes ; only there are somewhat different contrivances for different kinds of work.

Well ; how soon do you think you could learn to weave like this honest man ?

Ch. O ! Not for a great while !

Mr. E. But I suppose you could easily turn the wheel and draw out threads, like that good woman.

Ch. Not without some practice, I fancy. But what is that boy doing ?

Jac. He is cutting pegs for the shoemakers.

Ch. How quick he does them !

Jac. It is but poor employment, but better than being idle. The first lesson I teach my children, is, that their hands were made to earn their living with.

Mr. E. And a very good lesson, too.

Ch. What is this heap of twigs for ?

Jac. Why, my biggest boy and girl have learned a little how to make basket-work, so I have got them a few osiers or willow-twigs, to employ them at leisure hours. That bird-cage is their making ; and the back of that chair in which their grandmother sits.

Ch. Is not that ingeniously done, papa ?

Mr. E. It is, indeed. Here are several arts, you see, in this house, which both you and I should be much puzzled to set about. But there are some books, too, I perceive.

Ch. Here is a Bible, and a Testament, and a prayer-book, and a spelling-book, and a volume of the gardener's dictionary.

Mr. E. And how many of your family can read, my friend ?

Jac. All the children, but the youngest two, can read a little, sir ; but Meg, there, is the best scholar among us. She reads us a chapter in the Testament every morning, and very well, too, though I say it.

Mr. E. Do you hear that, Charles ?

Ch. I do, sir. Here's an almanac, too, against the wall ; and here are my favorite ballads of the Children of the Wood, and Chevy-chase.

Jac. I let the children paste them up, sir, and a few more that have no harm in them.

Mr. E. A very good choice, indeed. I see you have a pretty garden, there, behind the house.

Jac. It is only a little spot, sir ; but it serves for some amusement, and use too.

Ch. What beautiful stocks and wall-flowers ! We have none so fine in our garden.

Jac. Why, young man, to say the truth, we are rather proud of them. I have got a way of cultivating them, that I believe few, besides myself, are acquainted with ; and on Sundays, I have plenty of visitors to come and admire them.

Ch. Pray, what is this bush, with narrow whitish leaves and blue flowers ?

Jac. Do n't you know ? It is rosemary.

Ch. Is it good for any thing ?

Jac. We like the smell of it : and then the leaves, mixed with a little balm, make pleasant tea, which we sometimes drink in an afternoon.

Ch. Here are several more plants, that I never saw before.

Jac. Some of them are pot herbs, that we put

into our broth or porridge ; and others are physic herbs, for we cannot afford to go to a doctor for every trifling ailment.

Ch. But how did you learn the use of these things ?

Jac. Why, partly, from an old herbal that I have ; and partly from my good mother, and some old neighbors ; for we poor people are obliged to help one another as well as we can. If you were curious about plants, I could go into the fields, and show you a great many that we reckon very fine, for several uses, though I suppose we do n't call them by the proper names.

Mr. E. You keep your garden very neat, friend, and seem to make the most of every inch of ground.

Jac. Why, sir, we have hands enough, and all of us like to be doing a little in it, when our indoors work is over. I am in hopes soon to be allowed a bit of land from the waste for a potato ground, which will be a great help to us. I shall then be able to keep a pig.

Mr. E. I suppose, notwithstanding your industry, you live rather hardly sometimes.

Jac. To be sure, sir, we are somewhat pinched in dear times and severe weather ; but, thank God, I have constant work, and my children begin to be some help to us ; so that we fare better than some of our neighbors. If I do but keep my health, I do n't fear but we shall make a shift to live.

Mr. E. Keep such a contented mind, my

friend, and you will have few to envy. Good morning to you ; and if any sickness or accident should befall you, remember you have a friend in your neighbor at the hall.

Jac. I will, sir, and thank you.

Ch. Good morning to you.

Jac. The same to you, young master.

[They leave the cottage.]

Mr. E. Well, Charles, what do you think of our visit ?

Ch. I am highly pleased with it, sir. I shall have a better opinion of a poor cottager as long as I live.

Mr. E. I am glad of it. You see, when we compare ourselves with this weaver, all the advantage is not on our side. He is possessed of an art, the utility of which, secures him a livelihood whatever may be the changes of the times. All his family are brought up in industry, and show no small ingenuity in their several occupations. They are not without instruction, and especially seem to be in no want of that best of all, the knowledge of their duty. They understand something of the cultivation and uses of plants, and are capable of receiving enjoyment from the beauties of Nature. They partake of the pleasures of home and neighborhood. Above all, they seem content with their lot, and free from anxious cares and repinings. I view them as truly respectable members of society, acting well the part allotted to them, and that, a part

most of all, necessary to the well-being of the whole. They may, from untoward accidents, be rendered objects of our compassion, but they never can of our contempt.

Ch. Indeed, sir, I am very far from despising them now. But would it not be possible to make them more comfortable than they are at present ?

Mr. E. I think it would ; and when giving a little from the superfluities of persons in our situation, would add so much to the happiness of persons in theirs, I am of opinion that it is unpardonable not to do it. I intend to use my interest to get this poor man the piece of waste land he wants, and he shall have some from my share rather than go without.

Ch. And suppose, sir, we were to give him some good potatoes to plant it ?

Mr. E. We will. Then, you know, we have a fine sow that never fails to produce a numerous litter twice a year. Suppose we rear one of the next brood to be ready for him as soon as he has got his potato-ground into bearing ?

Ch. O yes ! that will be just the thing. But how is he to build a pig-sty ?

Mr. E. You may leave that to his own ingenuity ; I warrant he can manage such a job as that, with the help of a neighbor, at least. Well, I hope both the weaver, and you, will be the better for the acquaintance we have made to-day : and always remember, that *man, when fulfilling the duties of his station, be that station what it*

may, if but honorable, is a worthy object of respect to his fellow-man.

ON EMBLEMS.

PRAY, papa, (said *Cecilia*,) what is an *emblem*? I have met with the word in my lesson to-day, and I do not quite understand it.

An emblem, my dear, (replied he,) is a visible image of an invisible thing.

C. A visible image of—I can hardly comprehend—

P. Well, I will explain it more at length.

There are certain notions that we form in our mind without the help of our eyes, or any of our senses. Thus, Virtue, Vice, Honor, Disgrace, Time, Death, and the like, are not sensible objects, but ideas of the understanding.

C. Yes; we cannot feel them or see them, but we can think about them.

P. True. Now it sometimes happens that we wish to represent one of these in a visible form; that is, to offer something to the sight that shall raise a similar notion in the minds of the beholders. In order to do this, we must take some action or circumstance belonging to it, capable of being expressed by painting or sculpture; and this is called a *type*, or *emblem*.

C. But how can this be done?

P. I will tell you by an example. You know

the Sessions-house [or Court-house] where trials are held. It would be easy to write over the door, in order to distinguish it, "This is the Sessions-house;" but it is a more ingenious and elegant way of pointing it out, to place upon the building a figure representing the purpose for which it was erected, namely, to distribute *justice*. For this end, the notion of justice is to be *personified*, that is, changed from an idea of the understanding into one of the sight. A human figure is therefore made, distinguished by tokens which bear a relation to the character of that virtue. Justice carefully *weighs* both sides of a cause; she is therefore represented as holding a *pair of scales*. It is her office to *punish* crimes; she therefore bears a *sword*. This is then an *emblematical figure*, and the sword and scales are *emblems*.

C. I understand this very well. But why is she blindfolded?

P. To denote her impartiality; that she decides only from the merits of the case, and not from a view of the parties.

C. How can she weigh any thing, though, when her eyes are blinded?

P. Well objected. These are two inconsistent emblems; each proper in itself, but when used together, making a contradictory action. An artist of judgement will therefore drop one of them; and accordingly, the best modern figures of Justice have the balance and sword, without the bandage over the eyes.

C. Is not there the same fault, in making Cu-

pid blindfolded, and yet putting a bow and arrow into his hands ?

P. There is. It is a gross absurdity, and not countenanced by the ancient descriptions of Cupid, who is represented as the surest of all archers.

C. I have a figure of *Death* in my fable book. I suppose that is emblematical.

P. Certainly, or you could not know that it meant *Death*. How is he represented ?

C. He is nothing but bones, and he holds a scythe in one hand, and an hourglass in the other.

P. Well ! how do you interpret these emblems ?

C. I suppose he is all bones, because nothing but bones are left, after a dead body has lain long in the grave.

P. True. This, however, is not so properly an emblem, as the real and visible effect of death. But the scythe ?

C. Is not that, because *Death* mows down every thing ?

P. It is. No instrument could so properly represent the wide-wasting sway of *Death*, which sweeps down the race of animals, like flowers falling under the hand of the mower. It is a simile used in the Scriptures.

C. The hourglass, I suppose, is to show people that their time is come.

P. Right. In the hourglass that *Death* holds, all the sand is run out from the upper to the lower part. Have you never observed upon a monu-

ment an old figure, with wings, and a scythe, and with his head bald, all but a single lock before ?

C. O yes ! and I have been told it is *Time*.

P. Well ; and what do you make of it ? Why is he old ?

C. O ! because time has lasted a long while.

P. And why has he wings ?

C. Because time is swift, and flies away.

P. What does his scythe mean ?

C. I suppose that he destroys and cuts down every thing, like death.

P. True. But what is his single lock of hair for ?

C. I have been thinking, and cannot make it out.

P. I thought that would puzzle you. It relates to time as giving *opportunity* for doing any thing. It is to be seized as it presents itself, or it will escape, and cannot be recovered. Thus the proverb says, " Take time by the fore-lock." Well ; now you understand what emblems are.

C. Yes, I think I do. I suppose the painted sugar-loaves over the grocer's shop, and the mortar over the apothecary's, are emblems too.

P. Not so properly. They are the pictures of things which are themselves the objects of sight, as the real sugar-loaf in the shop of the grocer, and the real mortar in that of the apothecary. However, an implement belonging to a particular rank or profession, is commonly used as an emblem to point out the man exercising that rank or profession. Thus a crown is considered as an

emblem of a king ; a sword or spear, of a soldier ; an anchor, of a sailor ; and the like.

C. I remember Captain Heartwell, when he came to see us, had the figure of an anchor on all his buttons.

P. He had. That was the emblem or badge of his belonging to the navy.

C. But you told me that an emblem was a visible sign of an invisible thing : yet a sea-captain is not an invisible thing.

P. He is not invisible as a man, but his profession is invisible.

C. I do not well understand that.

P. Profession is a *quality*, belonging equally to a number of individuals, however different they may be in external form and appearance. It may be added or taken away, without any visible change. Thus, if Captain Heartwell were to give up his commission, he would appear to you the same man as before. It is plain, therefore, that what in that case he had lost, namely, his profession, was a thing invisible. It is one of those ideas of the understanding, which I before mentioned to you, as different from a sensible idea.

C. I comprehend it, now.

P. I have here a few emblematic pictures. Suppose you try whether you can find out their meaning.

C. O yes ! I should like that very well.

P. Here is a man standing on the summit of a steep cliff, and going to ascend a ladder which he has planted against a cloud.

C. Let me see ! that must be *Ambition*, I think.

P. How do you explain it ?

C. He has got very high already, but he wants to be still higher ; so he ventures up the ladder, though it is only supported by a cloud, and hangs over a precipice.

P. Very correct. Here is now another man, blind-folded, who is crossing a raging torrent upon stepping stones.

C. Then he will certainly fall in. I suppose he is one that runs into danger without considering where he is going.

P. Yes ; and you may call him *Fool-hardiness*. Do you see this hand coming out of a black cloud, and putting an extinguisher upon a lamp ?

C. I do. If that lamp, be the lamp of life, the hand that extinguishes it, must be *Death*.

P. Very just. Here is an old half-ruined building, supported by props ; and the figure of Time is sawing through one of the props.

C. That must be *Old Age*, surely.

P. It is. The next is a man leaning upon a breaking crutch.

C. I do n't well know what to make of that.

P. It is intended for *Instability* ; however, it might also stand for *False Confidence*. Here is a man looking very intently upon a sun-dial, with a candle in his hand.

C. I am at a loss for that, too.

P. Consider ; a sun-dial is only made to tell the hour by the shadow cast by the sun.

C. Then this man must know nothing about it.

P. True : and his name is therefore *Ignorance*. Here is a walking-stick, the lower part of which is set in the water, and it appears crooked. What does that denote ?

C. Is the stick really crooked ?

P. No ; but it is the property of water to give that appearance.

C. Then it must signify *Deception*.

P. It does. I dare say you will at once know this fellow, who is running as fast as his legs will carry him, and looking back at his shadow.

C. He must be *Fear* or *Terror*, I fancy.

P. Yes ; you may call him which you please. But who is this sower, that scatters seed in the ground ?

C. Let me consider. I think there is a parable in the Bible, about seed sown, and it there signifies something like *Instruction*.

P. True ; but it may also represent *Hope* ; for no one would sow, without hoping to reap the fruit. What do you think of this candle, held before a mirror, in which its figure is exactly reflected ?

C. I do not know what it means.

P. It represents *Truth* ; the essence of which, consists in the fidelity with which objects are received and reflected back by our minds. The object, is here a luminous one, to show the clearness and brightness of Truth. Here is next an upright column, the perfect straightness of which,

is shown by a plumb line, hanging from its summit, and exactly parallel to the side of the column.

C. I suppose that must represent *Uprightness*.

P. Yes, or, in other words, *Rectitude*. The strength and stability of the pillar, also denotes the security produced by this virtue. You see here a woman disentangling and reeling off a very perplexed skein of thread.

C. She must have a great deal of patience.

P. True. She is *Patience* herself. The brooding hen, sitting beside her, is another emblem of the same quality, that aids the interpretation. Who do you think this pleasing female is, that looks with such kindness upon the drooping plant she is watering ?

C. That must be *Charity*, I believe.

P. It is ; or you may call her *Benignity*, which is nearly the same thing. Here is a lady, sitting demurely, with one finger on her lip, while she holds a bridle in her other hand.

C. The finger on the lip, I suppose denotes Silence. The bridle must mean Confinement. I could almost fancy her to be a schoolmistress.

P. Ha ! ha ! I hope, indeed, many schoolmistresses are endued with her spirit, for she is *Prudence*, or *Discretion*. Well—we have now gone through with our pictures, and, upon the whole, you have interpreted them, very prettily.

C. But I have one question to ask you, papa ! In these pictures, and others that I have seen of the same sort, almost all the *good* qualities are

represented in the form of *women*. What is the reason of that ?

P. It is certainly a compliment, my dear, either to your sex's person or mind. The inventor either chose the figure of a female to clothe his agreeable quality in, because he thought that the most agreeable form, and therefore best suited to it ; or he meant to imply, that the female character is really the most virtuous and amiable. I rather believe that the first was his intention, but I shall not object to your taking it in the light of the second.

C. But is it true ? is it true ?

P. Why, I can give you very good authority, for the preference of the female sex in a moral view. One Ledyard,* a great traveller, who had walked through almost all the countries of Europe, and at last died in an expedition to explore the internal parts of Africa, gave a most decisive and pleasing testimony in favor of the superior character of women, whether savage or civilized. I was so much pleased with it, that I put great part of it into verse ; and if it will not make you vain, I will give you a copy of my lines.

C. O, pray do !

P. Here they are. Read them.

* [A biographical sketch of this individual, will be found in one of the volumes of the larger series of 'THE SCHOOL LIBRARY.']

LEDYARD'S PRAISE OF WOMEN.

Through many a land and clime a ranger,
With toilsome steps I've held my way,
A lonely, unprotected stranger,
To all the stranger's ills a prey.

While steering thus my course precarious,
My fortune still has been to find
Men's hearts and dispositions, various,
But gentle woman, ever kind.

Alive to every tender feeling,
To deeds of mercy always prone ;
The wounds of pain and sorrow healing
With soft compassion's sweetest tone.

No proud delay, no dark suspicion,
Stints the free bounty of their heart ;
They turn not from the sad petition,
But cheerful aid at once impart.

Formed in benevolence of nature,
Obliging, modest, gay, and mild,
Woman's the same endearing creature
In courtly town and savage wild.

When parched with thirst, with hunger wasted,
Her friendly hand refreshment gave ;
How sweet, the coarsest food has tasted ;
What cordial, in the simple wave !

Her courteous looks, her words caressing,
Shed comfort on the fainting soul ;
Woman's the stranger's general blessing,
From sultry India, to the pole.

WALKING THE STREETS.

A PARABLE.

HAVE you ever walked through the crowded streets of a great city ?

What shoals of people pouring in from opposite quarters, like torrents meeting in a narrow valley ! You would imagine it impossible for them to get through ; yet all pass on their way, without stop or molestation.

Were each man to proceed exactly in the line in which he set out, he could not move many paces, without encountering another full in his track. They would strike against each other, fall back, push forward again, block up the way for themselves and those after them, and throw the whole street into confusion.

All this is avoided, by every man's *yielding a little*.

Instead of advancing square, stiff, with arms stuck out, every one who knows how to walk the streets, glides along, his arms close, his body oblique and flexible, his track gently winding, leaving now a few inches on this side, now on that, so as to pass and be passed, without touching, in the smallest possible space.

He pushes no one into the gutter, nor goes into it himself. By *mutual accommodation*, the path, though narrow, holds them all.

He goes neither much faster nor much slower than those who go in the same direction. In the first case, he would elbow, in the second, he would be elbowed.

If any accidental stop arises, from a carriage crossing, a cask being rolled, a pickpocket detected, or the like, he does not increase the bustle by rushing into the midst of it, but checks his pace, and patiently waits for the removal of the obstruction.

Like this is the *march of life*.

In our progress through the world, a thousand things stand continually in our way. Some people meet us, full in the face, with opposite opinions and inclinations. Some stand before us, in our pursuit of pleasure or interest, and others follow close upon our heels. Now, we ought in the first place to consider, that *the road is as free for one as for another*; and therefore we have no right to expect that persons should go out of their way to let us pass, any more than we out of ours. Then, if we do not mutually yield and accommodate a little, it is clear that we must all stand still, or be thrown into a perpetual confusion, of squeezing and jostling. If we are all in a hurry to get on, as fast as possible, to some point of pleasure or interest, in our view, and do not occasionally hold back, when the crowd gathers and angry contentions arise, we shall only augment the tumult, without advancing our own progress. On the whole, it is our business to move onwards, steadily, but quietly, obstructing others as little

as possible, yielding a little to this man's prejudices, and that man's desires, and doing every thing in our power to make the *journey of life* easy to all our fellow-travellers, as well as to ourselves.

ON PRESENCE OF MIND.

Mrs. F., one day, having occasion to be bled, sent for the surgeon. As soon as he entered the room, her young daughter, Eliza, started up, and was hastily going away, when her mother called her back.

Mrs. F. Eliza, do not go, I want you to stay by me.

E. Dear mamma ! I can never bear to see you bled.

Mrs. F. Why not ? what harm will it do you ?

E. O dear ! I cannot look at blood. Besides, I cannot bear to see you hurt, mamma !

Mrs. F. O ! if I can bear to feel it, surely you may to see it. But come ; you *must* stay, and we will talk about it afterwards.

Eliza, then, pale and trembling, stood by her mother, and saw the whole operation. She could not help, however, turning her head away, when the incision was made ; and the first flow of blood made her start and shudder. When all was over, and the surgeon gone, Mrs. F. began.

Well, Eliza ! what do you think of this mighty

matter, now ? Would it not have been very foolish to have run away from it ?

E. Oh mamma ! how frightened I was, when he took out his lancet ! Did it not hurt you a great deal ?

Mrs. F. No, very little. And if it had, it was to do me good, you know.

E. But why should I stay to see it ? I could do you no good.

Mrs. F. Perhaps not ; but it will do you good, to be accustomed to such sights.

E. Why, mamma ?

Mrs. F. Because instances are every day happening, in which it is our duty to assist fellow-creatures, in circumstances of pain and distress ; and if we were to indulge a reluctance to come near to them, on those occasions, we should never acquire either the knowledge or the presence of mind necessary for the purpose.

E. But if I had been told how to help people in such cases, could not I do it without being used to see them ?

Mrs. F. No. We have all naturally a horror at every thing which is the cause of pain and danger to ourselves or others ; and nothing but habit, can give most of us the presence of mind necessary to enable us, in such occurrences, to employ our knowledge to the best advantage.

E. What is *presence of mind*, mamma ?

Mrs. F. It is that steady possession of ourselves, in cases of alarm, that prevents us from being flurried and frightened. You have heard the

expression, *having all our wits about us*. This is the effect of presence of mind, and a most inestimable quality it is ; for, without it, we are full as likely to run into danger, as to avoid it. Do you not remember hearing of your cousin Mary's cap taking fire, in the candle ?

E. O yes, very well.

Mrs. F. Well, the maid, as soon as she saw it, set up a great scream, and ran out of the room ; and Mary might have been burnt to death for any assistance she could give her.

- *E.* How foolish that was !

Mrs. F. Yes ; the girl had not the least presence of mind, and the consequence was, depriving her of all recollection, and making her entirely useless. But as soon as your aunt came up, she took the right method for preventing the mischief. The cap was too much on fire to be pulled off ; so she hastily drew a quilt from the bed and flung it round Mary's head, and thus stifled the flame.

E. Mary was a good deal scorched, though.

Mrs. F. Yes ; but it was very well that it was no worse. If the maid, however, had acted with any sense, at first, no harm, at all, would have been done with the exception of burning the cap. I remember a much more fatal example of the want of presence of mind. The mistress of a family was awakened, by flames bursting through the wainscot, into her chamber. She flew to the staircase ; and, in her confusion, instead of going up stairs, to call her children, who slept together

in the nursery over head, and who might all have escaped, by the top of the house, she ran down, and with much difficulty made way through the fire into the street. When she got there, the thought of her poor children rushed into her mind, but it was too late. The stairs had caught fire, so that nobody could get near them, and they were burned in their beds.

E. What a sad thing !

Mrs. F. Sad, indeed ! Now I will tell you of a different conduct. A lady was awakened by the crackling of fire, and saw it shining under her chamber floor. Her husband would immediately have opened the door, but she prevented him, since the smoke and flame would then have burst in upon them. The children, with a maid, slept in a room opening out of theirs. She went and awakened them ; and tying together the sheets and blankets, she sent down the maid from the window, first, and then let down the children, one by one, to her. Last of all, she descended herself. A few minutes after, the floor fell in, and all the house was in flames.

E. What a happy escape !

Mrs. F. Yes ; and with what cool recollection of mind it was managed ! For mothers to love their children, and be willing to run any hazards for them, is common ; but, in weak minds, that very love is apt to prevent exertions in the time of danger. I knew a lady, who had a fine little boy sitting in her lap. He put a whole plum into his mouth, which slipped into his throat, and

choked him. The poor fellow turned black, and struggled violently ; and the mother was so frightened, that, instead of putting her finger into his throat, and pulling out the plum, which might easily have been done, she laid him on the floor, and ran to call for assistance. But the maids, who came up, were as much flurried as she ; and the child died, before any thing effectual was done to relieve him.

E. How unhappy she must have been about it !

Mrs. F. Yes. It threw her into an illness, which nearly cost her her life.

Another lady, seeing her little boy climb up a high ladder, set up a violent scream, that frightened the child, so that he fell down, and was much hurt ; whereas, if she had possessed command enough over herself, to speak to him gently, he might have descended safely.

E. Dear mamma ! what is that running down your arm ? Oh, it is blood !

Mrs. F. Yes, my arm bleeds again. I have stirred it too soon.

E. Dear ! what shall I do ?

Mrs. F. Do n't frighten yourself. I shall stop the blood by pressing on the orifice with my finger. In the mean time, do you ring the bell.

[Eliza rings—a servant comes.

Mrs. F. Betty, my arm bleeds. Can you tie it up, again ?

Betty. I believe I can, madam.

[She takes off the bandage and puts on another.

E. I hope it is stopt, now.

Mrs. F. It is. Betty has done it very well. You see she went about it with composure. This accident puts me in mind of another story, which is very well worth hearing. A man once reaping in the field, cut his arm dreadfully with his sickle, and divided an artery.

E. What is that, mamma ?

Mrs. F. It is one of the canals or pipes, through which the blood, from the heart, runs like water, in a pipe, brought from a reservoir. When one of these is cut, it bleeds very violently, and the only way to stop it, is to make a pressure, between the wounded place and the heart, in order to intercept the course of the blood towards it. Well,—this poor man bled profusely ; and the people about him, both men and women, were so stupified with fright, that some ran one way, some another, and some stood stock still. In short, he would soon have bled to death, had not a brisk stout-hearted young woman, who came up, slipt off her garter, and bound it tight above the wound, by which means, the bleeding was stopt, till proper help could be procured.

E. What a clever person ! But how did she know what to do ?

Mrs. F. She had, perhaps heard it, as you have done, now ; and so probably had some of the others, but they had not presence of mind enough, to put it in practice. It is a much greater trial of courage, however, when the danger presses upon ourselves as well as others. Sup-

pose a furious bull was to come upon you, in the midst of a field. You could not possibly escape him, by running, and attempting it would destroy your only chance of safety.

E. What would that be ?

Mrs. F. I have a story for that, too. The mother of that Mr. Day, who wrote *Sandford and Merton*, was distinguished, as he also was, for courage and presence of mind. When a young woman, she was one day walking in the fields with a companion, when they perceived a bull coming towards them, roaring, and tossing about his horns, in the most tremendous manner.

E. Oh ! how I should have screamed !

Mrs. F. I dare say you would ; and so did her companion. But she bid her walk away, behind her, as gently as she could, whilst she herself stopt short, and faced the bull, eyeing him with a determined countenance. The bull, when he had come near, stopt also, pawing the ground and roaring. Few animals will attack a man who steadily waits for them. In a little while, she drew back some steps, still facing the bull. The bull followed. She stopt, and then he stopt. In this manner, she made good her retreat, to the stile, over which her companion had before got. She then turned, and sprung over it, and thus escaped from danger.

E. That was bravely done, indeed ! But I think very few women could have done as much.

Mrs. F. Such a degree of cool resolution, to be sure, is not common. But I have read of a

lady in the East Indies, who showed at least as much. She was sitting out of doors, with a party of pleasure, when they suddenly saw a huge tiger that had crept through a hedge near them, and was just ready to make his fatal spring. They were struck with the utmost consternation; but she, with an umbrella in her hand, turned to the tiger, and suddenly spread it full in his face. This unusual assault so terrified the beast, that, taking a prodigious leap, he sprung over the fence, and plunged out of sight, into the neighboring thicket.

E. Well! that was the boldest thing I ever heard of. But is it possible, mamma, to make one's self courageous?

Mrs. F. Courage, my dear, is of two kinds; one the gift of Nature; the other of reason and habit. Men have naturally more courage than women; that is, they are less affected by danger; it makes a less impression upon them, and does not flutter their spirits, so much. This is owing to the difference of their bodily constitution; and from the same cause, some men and some women are more courageous than others. But the other kind of courage, may in some measure be acquired by every one. Reason teaches us to face smaller dangers, in order to avoid greater, and even to undergo the greatest, when our duty requires it. Habit makes us less affected by particular dangers, which have often come in our way. A sailor does not feel the danger of a storm, so much as a landsman; but if he was mounted upon a spirited horse, in a fox chase, he would probably

be the most timorous man in the company. The courage of women is chiefly tried in domestic dangers. They are attendants on the sick and dying ; and they must qualify themselves to go through many scenes of terror in these situations, which would alarm the stoutest-hearted man, who was not accustomed to them.

E. I have heard that women generally bear pain and illness, better than men.

Mrs. F. They do so, because they are more used to them, both in themselves and others.

E. I think I should not be afraid again to see any body bled.

Mrs. F. I hope not. It was for that purpose, I made you stand by me. And I would have you always force yourself to look on, and give assistance, in cases of this kind, however painful it may at first be to you, that you may, as soon as possible, gain that presence of mind which arises from habit.

E. But would that make me like to be bled myself ?

Mrs. F. Not to *like* it, but to lose all foolish fears about it, and submit calmly to it, when good for you. But I hope you have sense enough to do that, already.

EARTH AND HER CHILDREN.

IN a certain district of the globe, things one year went on so ill, that almost the whole race of living beings, animals and vegetables, carried their lamentations and complaints to their common mother, *the Earth*.

First came *Man*. “Oh Earth, (said he,) how can you behold, unmoved, the intolerable calamities of your favorite offspring! Heaven shuts up all the sources of its benignity to us, and showers plagues and pestilence on our heads; storms tear to pieces all the works of human labor; fire and water seem let loose to devour us; and in the midst of all these evils, some demon possesses us with a rage of worrying and destroying one another; so that the whole species seem doomed to perish. O, intercede in our behalf, or else receive us again into your maternal bosom, and hide us from the sight of these accumulated distresses!”

The other animals, then spoke, by their deputies, the horse, the ox, and the sheep. “O pity, mother Earth, those of your children, that repose on your breast, and derive their subsistence from your fruitful bosom! We are parching with drought, we are scorched by lightning, we are beaten by pitiless tempests, salubrious vegetables refuse to nourish us, we languish under disease,

and the race of men treat us with unusual rigor. Never, without speedy succor, can we survive to another year."

The vegetables next, those that form the verdant carpet of the earth, that cover the waving fields of harvest, and that spread their lofty branches in the air, sent forth their complaint.

"O, our general mother, to whose breast we cleave, and whose vital juices we drain, have compassion upon us ! See how we wither and droop under the baleful gales that sweep over us ; how we thirst in vain for the gentle dew of heaven ; how immense tribes of noxious insects pierce and devour us ; how the famishing flocks and herds tear us up by the roots ; and how men, through mutual spite, lay waste and destroy us, while yet immature. Already, whole nations of us are desolated, and unless you save us, another year will witness our total destruction."

"My children, (said Earth,) I have now existed some thousand years ; and scarcely one of them has passed in which similar complaints have not risen, from one quarter or another. Nevertheless, every thing has remained in nearly the same state, and no species of created beings has been finally lost. The injuries of one year, are repaired by the succeeding. The growing vegetables may be blasted, but the seeds of others lie secure in my bosom, ready to receive the vital influence of more favorable seasons. Animals may be thinned, by want or disease, but a remnant is always left, in whom survive the principle of

future increase. As to man, who suffers not only from natural causes, but from the effects of his own follies and vices, his miseries rouse within him the latent powers of remedy, and bring him to his reason again ; while experience continually goes along with him to improve his means of happiness, if he will but listen to its dictates. Have patience, then, my children ! You were born to suffer, as well as to enjoy ; and you must submit to your lot. But console yourselves with the thought, that you have a kind Master above, who created you for benevolent purposes, and will not withhold his protection when you stand most in need of it.

GREAT MEN.

I WILL show you a *great man*, said Mr. C., one day, to his son, at the time the duke of Bridgewater's canal was making. He accordingly took him to a place, where a number of workmen were employed in raising a prodigious mound, on the top of which the canal was to be carried across a deep valley. In the midst of them, was a very plain dressed man, awkward in his gestures, uncouth in his appearance, and rather heavy in his countenance ;—in short, a mere countryman, like the rest. He had a plan in his hand, and was giving directions to the people round him, and surveying the whole labor with profound atten-

tion. This, Arthur, said Mr. C. is the great *Mr. Brindley*.

What, cried Arthur, in surprise, is that a *great man*?

Mr. C. Yes, a very great man. Why are you surprised?

A. I do n't know, but I should have expected a great man to have looked very differently.

Mr. C. It matters little how a man looks, if he can perform great things. That person, without any advantages of education, has become, by the force of his own genius, the first engineer of the age. He is doing things, that were never done or even thought of, in this country, before. He pierces hills, builds bridges over valleys, makes aqueducts across navigable rivers, and, in short, is likely to change the whole face of the country, and to introduce improvements, the value of which cannot be calculated. When at a loss how to bring about any of his designs, he does not go to other people, for assistance, but he consults the wonderful faculties of his own mind, and finds a way to overcome his difficulties. He looks like a rustic, it is true, but he has a soul of the first order, such as is not granted to one out of millions of the human race.

A. But are all men of extraordinary abilities properly *great men*?

Mr. C. The word has been variously used; but I would call every one, a great man, *who does great things by means of his own powers*. Great abilities are often employed about trifles, or indo-

lently wasted without any considerable exertion at all. To make a great man, the object pursued should be large and important, and vigor and perseverance should be employed in the pursuit.

A. All the great men I remember to have read about, were kings, or governors, or generals, or prime ministers, or in some high station or other.

Mr. C. It is natural they should stand foremost, on the list of great men, because the sphere, in which they act, is an extensive one, and what they do has a powerful influence over numbers of mankind. Yet those that invent useful arts, or discover important truths, which may promote the comfort and happiness of unborn generations, in the most distant parts of the world, act a still more important part ; and their claim to merit is generally more undoubted, than that of the former, because what they do, is more certainly their own.

In order to estimate the real share a man in a high station has had in the great events which have been attributed to him, strip him, in your imagination, of the external advantages of rank and power, and see what a figure he would have made without them ; or fancy a common man put in his place, and judge whether affairs would have gone on in the same track. Augustus Cæsar, and Louis XIV., of France, have both been called great princes ; but deprive them of their crown, and they will both dwindle into obscure and trivial characters. But no change of circumstances, could reduce Alfred the Great to the level of a

common man. The two former could sink into their graves, and yield their power to a successor, and scarcely be missed ; but Alfred's death changed the fate of his kingdom. Thus, with Epaminondas, fell all the glory and greatness of the Theban state. He first raised it to consequence, and it could not survive him.

A. Was not Czar Peter a great man ?

Mr. C. I am not sure that he deserves that title. Being a despotic prince, at the head of a vast empire, he could put in execution whatever plans he was led to adopt, and these plans in general were grand and beneficial to his country. But the means he used, were such as the master of the lives and fortunes of millions could easily employ ; and there was more of brutal force, than of skill and judgement, in the manner in which he pursued his designs. Still, he was an extraordinary man ; and the resolution of leaving his throne, in order to acquire, in foreign countries, the knowledge necessary to rescue his own from barbarism, was a feature of greatness. A truly great prince, however, would have employed himself better, than in learning to build ships at Saardam.

A. What was Alexander the Great ?

Mr. C. A great conqueror, but not a great man. It was easy for him, with the well-disciplined army of Greeks which he received from his father Philip, to overrun the unwarlike kingdoms of Asia, and defeat the Great King, as the king of Persia was called ; but though he showed some

marks of an elevated mind, he seems to have possessed few qualities which could have raised him to distinction had he been born in an humble station. Compare his fugitive grandeur, supported by able ministers and generals, to the power, which his tutor, the great Aristotle, merely through the force of his own genius, exercised over men's minds throughout the most civilized part of the world, for two thousand years after his death. Compare, also, the part which has been acted in the world, by the Spanish monarchs, the masters of immense possessions in Europe and America, to that performed by Christopher Columbus,* the Genoese navigator, who could have it inscribed on his tombstone, that he *gave* a new world to the kingdoms of Castile and Arragon. These comparisons will teach you to distinguish, between greatness of character and greatness of station, which are too often confounded. He who governs a great country, may in one sense be called a great king ; but this is no more than an appellation belonging to rank, like that of the Great Mogul or the Grand Signior, and infers no more personal grandeur, than the title of Mr. Such-a-one, the Great Grocer or Brewer.

A. Must not great men, be good men, too ?

Mr. C. If that man is great, who does great things, it will not follow that goodness must necessarily be one of his qualities, since that chiefly

* [For an interesting Life of this distinguished man, by Washington Irving, see 'THE SCHOOL LIBRARY,' Vol. I., large series.]

refers to the end and intention of actions. Julius Cæsar, and Cromwell, for example, were men capable of the greatest exploits ; but, directing them not to the public good, but to the purposes of their own ambition, in pursuit of which they violated all the duties of morality, they have obtained the title of *great bad men*. A person, however, cannot be great, at all, without possessing many virtues. He must be firm, steady, and diligent, superior to difficulties and dangers, and equally superior to the allurements of ease and pleasure. For want of these moral qualities, many persons, of exalted minds and great talents, have failed to deserve the title of great men. It is in vain that the French poets and historians have decorated Henry IV., with the name of Great ; his easily-yielding disposition, and uncontrollable love of pleasure, have caused him to forfeit his claim to it, in the estimation of impartial judges. As power is essential to greatness, a man cannot be great, without *great power in himself*, which is the greatest kind of power.

A. After all, is it not better to be a good man, than a great one ?

Mr. C. There is more merit in being a good man, because it is what we make ourselves, whereas the talents, that produce greatness, are the gift of Nature ; though they may be improved by our own efforts, they cannot be acquired. But if goodness, is the proper object of our love and esteem, greatness deserves our high admiration and respect. This Mr. Brindley before us is by

all accounts a worthy man, but it is not for that reason I have brought you to see him. I wish you to look upon him, as one of those sublime and uncommon objects of Nature, which fill the mind with a certain awe and astonishment. Next to being great, one's-self, it is desirable to have a true relish for greatness.*

ON MAN.

CHARLES. You gave me the definition of a horse some time ago ;—Pray, sir, how is a man defined ?

Father. That is worth inquiring. Let us consider, then. He must either stand by himself, or be ranked among the quadrupeds ; for there are no other two-legged animals, but birds, which he certainly does not resemble.

C. But how can he be made a quadruped ?

F. By setting him to crawl on the ground ; in which case, he will as much resemble a baboon, as a baboon, set on his hind legs, does a man. In reality, there is little difference between the arms of a man and the fore-legs of a quadruped ; and in all other circumstances, of internal and external structure, they are evidently formed upon the same model.

* [A biographical sketch of Mr. Brindley, may be found in Vol. I., of 'Pursuit of Knowledge Under Difficulties,' which makes a part of the large series of the 'SCHOOL LIBRARY.']

C. I suppose, then, we must call him a digitated quadruped, that generally goes upon his hind-legs.

F. A naturalist could not reckon him otherwise ; and accordingly Linnæus has placed him in the same division with apes, macocos, and bats.

C. Apes, macocos, and bats !

F. Yes,—they all have four cutting teeth in the upper jaw, and teats on the breast. How do you like your relations ?

C. Not at all.

F. Then we will get rid of them, by applying to the other part of human nature—the *mind*. Man is an animal possessed of *reason*, and the only one. This, therefore, is enough to define him.

C. I have often heard, that man is a rational creature, and I have a notion what that means ; but I should like to have an exact definition of reason.

F. Reason is the faculty by which we compare ideas and draw conclusions. A man walking in the woods of an unknown country finds a bow. He compares it in his mind with other bows, and forms the conclusion that it must have been made by man, and that therefore the country is probably inhabited. He discovers a hut ; sees in it half-burnt wood, and finds that the ashes are not quite cold. He concludes, therefore, with certainty, not only that there are inhabitants, but that they cannot be far distant. No other animal could do this.

C. But would not a dog, who had been used

to live with men, run into such a hut and expect to find people in it ?

F. He probably would ; and this, I acknowledge, is very like reason ; for he may be supposed to compare, in his mind, the hut he has lived in, with that he sees, and to conclude, that as there were men in the first, there are in the last. But how little way does this carry him ! He finds no men there, and he is unable, by any marks, to form a judgement how long they have been absent, or what sort of people they were ; still less does he form any plan of conduct, in consequence of his discovery.

C. Then is not the difference, only, that man has much reason, and brutes little ?

F. If we adhere to the mere words of the definition of reason, I believe this must be admitted ; but in the exercise of it, the superiority of the human faculties is so great, that man is, in many points, absolutely distinguished from brutes. In the first place, he has the *use of speech*, which no other animal has attained.

C. Cannot many animals make themselves understood by one another, by their cries ?

F. They can make known a few of their common wants and desires, but they cannot *discourse*, or communicate ideas stored up in the memory. It is this faculty, which makes man an *improvable* being, the wisdom and experience acquired by one individual, being thus transmitted to others, and so on in an endless series of progression. There is no reason to suppose, that the dogs of

the present day, are more knowing than those which lived a thousand years ago ; but the men of this age, are much better acquainted with numberless arts and sciences, than their remote ancestors ; since, by the use of speech, and of writing, (which is speech addressed to the eye,) every age adds its own discoveries to all former ones. This knowledge of the past, likewise gives man a great insight into the future. Shakspeare excellently defines man, by saying that he is a creature, made with large discourse, looking before and after.

C. Animals must surely know something of the future, when they lay up a store of provisions for the winter.

F. No, it is pretty certain that this is not the case, for they will do it as much the first year of their lives, as any other. Young bees, turned out of a hive, as soon as they have swarmed and got a habitation, begin laying up honey, though they cannot possibly foresee the use they shall have for it. There are a vast number of actions, of this kind, in animals, which are directed to a useful end, but an end which the animal knows nothing of. And this is what we call *instinct*, and properly distinguish from reason. Man has less of it than almost any other animal, because he wants it less. Another point of essential difference, is, that man is the only animal that makes use of *instruments* in any of his actions.

He is a *tool-making* and *machine-making* animal. By means of this faculty, alone, he is every where lord of the creation, and has equal tri-

umphed over the subtlety of the cunning, the swiftness of the fleet, and the force of the strong. He is the only animal, that has found out the use of fire, a most important acquisition !

C. I have read of some large apes, that will come and sit round a fire in the woods, when men have left it, but have not the sense to keep it alive, by throwing on sticks.

F. Still less then could they light a fire. In consequence of this discovery, man cooks his food, which no other animal does. He, alone, guards against the cold, by clothing, as well as by fire. He alone, cultivates the earth, and keeps living animals for future uses.

C. But have not there been wild men, bred in the woods, that could do none of these things ?

F. Some instances of this kind are recorded, and they are not to be wondered at ; for man was meant to be a *gregarious* animal, or one living in society, in which, alone, his faculties have full scope, and especially his power of improving by the use of speech. These poor solitary creatures, brought up with the brutes, were in a state entirely unnatural to them. A solitary bee, ant, or beaver, would have none of the skill and sagacity of those animals in their proper social condition. Society sharpens all the faculties, and gives ideas and views which never could have been entertained by an individual.

C. But some men, that live in society, seem to be little above the brutes, at least when com-

pared to other men. What is a Hottentot, in comparison to one of us.

F. The difference, indeed, is great ; but we agree in the most essential characters of *man*, and perhaps the advantage is not all on our side. The Hottentot cultivates the earth, and rears cattle. He not only herds with his fellows, but he has instituted some sort of government for the protection of the weak against the strong. He has a notion of right and wrong, and is sensible of the necessity of controlling present appetites and passions for the sake of a future good. He has therefore *morals*. He is possessed of weapons, tools, clothing, and furniture, of his own making. In agility of body, and the knowledge of various circumstances relative to the nature of animals, he surpasses us. His inferiority, lies in those things, in which many of the lowest class among us, are almost equally inferior to the instructed.

C. But Hottentots have no notion of a God, or a future state.

F. I am not certain how far that is true ; but, alas ! how many among us have no knowledge, at all, on those subjects, or only some vague notions, full of absurdity and superstition ! People, far advanced in civilization, have entertained the grossest errors on those subjects, which are only to be corrected by the serious application of reason, or by a direct revelation from heaven.

C. You said man was an *improvable* creature ; —but have not many nations been a long time in a savage state, without improvement ?

F. Man is always *capable of improvement*; but he may exist a long time, even in society, without *actually improving* beyond a certain point. There is little improvement among nations who have not the *art of writing*; for tradition is not capable of preserving very accurate or extensive knowledge; and many arts and sciences, after flourishing greatly, have been entirely lost, in countries which have been overrun by barbarous and illiterate nations. Then there is a principle, which I might have mentioned as one of those that distinguished man from brutes, but it as much distinguishes some men from others. This is *curiosity*, or the love of knowledge for its own sake. Most savages have little or nothing of this; but without it, we should want one of the chief inducements to exert our faculties. It is *curiosity*, that impels us to search into the properties of every part of Nature, to try all sorts of experiments, to visit distant regions, and even to examine the appearances and motions of the heavenly bodies. Every fact, thus discovered, leads to other facts; and there is no limit to be set to this progress. The time may come, when what we now know, may seem as much ignorance, to future ages, as the knowledge of early times, does to us.

C. What nations know the most, at present?

F. The Europeans have long been distinguished for superior ardor after knowledge, and they possess, beyond all comparison, the greatest share of it, whereby they have been enabled to com-

mand the rest of the world. The countries in which the arts and sciences most flourish, at present, are the northern and middle parts of Europe, and also [our own country] North America, or the United States, which, you know, is inhabited by descendants of Europeans. In these countries, man may be said to be *most man* ; and they may apply to themselves, the poet's boast,

Man is the nobler growth these realms supply,
And souls are ripened in our northern sky.

THE LITTLE PHILOSOPHER.

MR. L. was one morning riding by himself, when, dismounting to gather a plant in the hedge, his horse got loose and galloped away before him. He followed, calling the horse by his name, which stopped, but on his approach set off again. At length a little boy in the neighboring field, seeing the affair, ran across where the road made a turn, and getting before the horse, took him by the bridle, and held him till his owner came up. Mr. L. looked at the boy, and admired his ruddy cheerful countenance. Thank you, my good lad ! (said he,) you have caught my horse very cleverly. What shall I give you for your trouble ? (putting his hand into his pocket.)

I want nothing, sir, said the boy.

Mr. L. Don't you ? so much the better for

you. Few men can say as much. But pray, what were you doing in the field ?

B. I was rooting up weeds, and tending the sheep that are feeding on the turnips.

Mr. L. And do you like this employment ?

B. Yes, very well, this fine weather.

Mr. L. But would you not rather play ?

B. This is not hard work ; it is almost as good as play.

Mr. L. Who set you to work ?

B. My father, sir.

Mr. L. Where does he live ?

B. Just by, among the trees, there.

Mr. L. What is his name ?

B. Thomas Hurdle.

Mr. L. And what is yours ?

B. Peter, sir.

Mr. L. How old are you ?

B. I shall be eight, at Michaelmas.*

Mr. L. How long have you been out, in this field ?

B. Ever since six in the morning.

Mr. L. And are you not hungry ?

B. Yes ; I shall go to my dinner soon.

Mr. L. If you had sixpence now, what would you do with it ?

B. I don't know. I never had so much in my life.

Mr. L. Have you no playthings ?

* [The feast of St. Michael, which is celebrated the 29th of September.—AM. ED.]

B. Playthings ! what are those ?

Mr. L. Such as balls, ninepins, marbles, tops, and wooden horses.

B. No, sir ; but our John makes footballs, to kick in the cold weather, and we set traps for birds ; and then I have a jumping pole, and a pair of stilts to walk through the dirt with ; and I had a hoop, but it is broken.

Mr. L. And do you want nothing else ?

B. No. I have hardly time for those ; for I always ride the horses to the field, and bring up the cows, and run to the town of errands, and that is as good as play, you know.

Mr. L. Well, but you could buy apples or gingerbread at the town, I suppose, if you had money.

B. Oh, I can get apples at home ; and as for gingerbread, I do n't mind it much, for my mother gives me a pie now and then, and that is as good.

Mr. L. Would not you like a knife to cut sticks ?

B. I have one ; here it is ; brother John gave it me.

Mr. L. Your shoes are full of holes ; do n't you want a better pair ?

B. I have a better pair for Sundays.

Mr. L. But these let in water.

B. Oh ! I do n't care for that.

Mr. L. Your hat is all torn, too.

B. I have a better at home, but I had as lief have none at all, for it hurts my head.

Mr. L. What do you do, when it rains ?

B. If it rains very hard, I get under the hedge, till it is over.

Mr. L. What do you do, when you are hungry, before it is time to go home ?

B. I sometimes eat a raw turnip.

Mr. L. But if there are none ?

B. Then I do as well as I can ; I work on, and never think of it.

Mr. L. Are you not dry, sometimes, this hot weather ?

B. Yes, but there is water enough.

Mr. L. Why, my little fellow, you are quite a philosopher !

B. Sir ?

Mr. L. I say you are a philosopher, but I am sure you do not know what that means.

B. No, sir ; no harm, I hope.

Mr. L. No, no ! (*laughing.*) Well, my boy, you seem to want nothing at all, so I shall not give you money to make you want any thing. But were you ever at school ?

B. No, sir ; but father says I shall go, after harvest.

Mr. L. You will want books then.

B. Yes, the boys have each a spelling book, and a Testament.

Mr. L. Well, then, I will give them to you ; tell your father so, and that it is because I thought you a very good, contented little boy. So now go to your sheep again.

B. I will, sir. Thank you.

Mr. L. Good by, Peter.

B. Good by, sir.

FLYING AND SWIMMING.

How I wish I could fly ! (cried Robert, as he was gazing after his pigeons, that were exercising themselves in a morning's flight.) How fine it must be to soar to such a height, and to dash through the air with so swift a motion !

I doubt not, (said his father,) that the pigeons have great pleasure in it ; but we have our pleasures, too ; and it is idle to indulge longings for things quite out of our power.

R. But do you think it impossible for men to learn to fly ?

F. I do ; for I see they are not furnished by Nature with organs requisite for the purpose.

R. Might not artificial wings be contrived, such as Dædalus* is said to have used ?

F. Possibly they might ; but the difficulty would be, to put them in motion.

R. Why could not a man move them, if they were fastened to his shoulders, as well as a bird ?

F. Because he has arms to move, which the

* [Dædalus was an Athenian artificer, who is said to have formed the Cretan labyrinth, and to have invented the wedge, axe, level, and many other mechanical instruments, and also the sails of ships. It is said, that he contrived wings of feathers and wax, which he fitted to his body, and was enabled to fly some distance.—AM. ED.]

bird has not. The same organs, which in quadrupeds are employed to move the fore-legs, and in man, the arms, are spent in birds on the motion of the wings. Nay, the muscles, or bundles of flesh, that move the wings, are proportionally much larger and stronger than those bestowed upon our arms : so that it is impossible, formed as we are, that we should use wings, were they made and fastened on with ever so much art.

R. But Cupids, and such things, are painted with wings ; and I think they look very natural.

F. To you they may appear so : but an anatomist sees them at once to be monsters, which could not really exist.

R. God might have created winged men, however, if He had pleased.

F. No doubt ; but they could not have had the same shape, that men have now. They would have been different creatures, such as it was not in his plan to make. But you that long to fly,—consider if you have made use of all the faculties already given you ! You want to subdue the air,—what can you do with water ? Can you swim ?

R. No, not yet.

F. Your companion, Johnson, I think, can swim very well.

R. Yes.

F. Reflect, then, on the difference betwixt him and you. A boat oversets with you both in a deep stream. You sink at once to the bottom, and infallibly lose your life. He rises, like a cork, darts away, with the greatest ease, and

reaches the side in perfect safety. Both of you, pursued by a bull, come to the side of a river. He jumps in and crosses it. You are drowned, if you attempt it, and tossed by the bull, if you do not. What an advantage he has over you ! Yet you are furnished with exactly the same bodily powers, that he is. How is this ?

R. Because he has been taught, and I have not.

F. True ; but it is an easy thing to learn, and requires no other instruction than boys can give one another when they bathe together ; so that I wonder any body should neglect to acquire an art at once so agreeable and useful. The Romans used to say, by way of proverb, of a blockhead, "He can neither read nor swim." You may remember how Cæsar was saved at Alexandria, by throwing himself into the sea, and swimming with one hand, while he held up his Commentaries with the other.

R. I should like very well to swim, and I have often tried, but I always pop under water, and that daunts me.

F. And it is that fear which prevents you from succeeding.

R. But is it as natural for man to swim, as for other creatures ? I have heard that the young of most other animals swim the first time they are thrown into the water.

F. They do ; they are without fear. In our climate, the water is generally cold, and is early made an object of terror. But in the hot coun-

tries, where bathing is one of the greatest of pleasures, young children swim so early and well, that I should suppose they take to it, almost naturally.

R. I am resolved to learn, and I will ask Johnson to take me with him to the river.

F. Do ; but let him find you a safe place to begin at. I don't want you, however, to proceed so cautiously as Sir Nicholas Gimcrack did.

R. How was that ?

F. He spread himself out on a large table, and placing before him a basin of water, with a frog in it, he struck with his arms and legs as he observed the animal do.

R. And did that teach him ?

F. Yes ; to swim on dry land ; but he never ventured himself in the water.

R. Shall I get corks or bladders ?

F. No ; learn to depend on your own powers. It is a good lesson in other things, as well as in swimming. Learning to swim with corks, is like learning to construe Latin with a translation on the other side. It saves some pains at first, but the business is not done half so effectually.

THE SWALLOW AND TORTOISE.

A TORTOISE in a garden's bound,
An ancient inmate of the place,
Had left his winter-quarters under ground,
And with a sober pace

Was crawling o'er a sunny bed,
And thrusting from his shell his pretty toad-like
head.

Just come from sea, a *Swallow*,
As to and fro he nimbly flew,
Beat our old racer hollow :
At length, he stopped direct in view,
And said, " Acquaintance, brisk and gay,
How have you fared this many a day ?"

" Thank you !" replied the close housekeeper,
" Since you and I last autumn parted,
I've been a precious sleeper,
And never stirred nor started,
But in my hole I lay as snug
As fleas within a rug ;
Nor did I put my head abroad
Till all the snow and ice were thawed."

" But I," rejoined the bird,
" Who love cold weather just as well as you,
Soon as the warning blasts I heard,
Away I flew,
And mounting in the wind,
Left gloomy winter far behind,
Directed by the midday sun,
O'er sea and land my venturous course I steered,
Nor was my distant journey done
Till Afric's verdant coast appeared.
There, all the season long,
I chased gay butterflies and gnats,
And gave my negro friends a morning song,

And housed at night among the bats.
Then, at the call of Spring,
I northward turned my wing,
And here again her joyous message bring."

"Oh! what a deal of needless ranging,"
Returned the reptile grave;
"For ever hurrying, bustling, changing,
As if it were your life to save!
Why need you visit foreign nations?
Rather, like me, and some of your relations,
'Take out a pleasant half-year's nap,
Secure from trouble and mishap."

"A pleasant nap, indeed!" replied the Swallow,
"When I can neither see nor fly,
The bright example I may follow:
Till then, in truth, not I!
I measure time by its employment,
And only value life for life's enjoyment.
As good be buried all at once,
As doze out half one's days, like you, you stupid
dunce."

PERSEVERANCE AGAINST FORTUNE.

A STORY.

THEODORE was a boy of lively parts and engaging manners; but he had the failing of being

extremely impatient in his temper, and inclined to extremes. He was ardent in all his pursuits, but could bear no disappointment; and if the least thing went wrong, he threw up what he was about, in a pet, and could not be prevailed upon to resume it. His father, Mr. Carleton, had given him a bed in the garden, which he had cultivated with great delight. The borders were set with double daisies, of different colors, next to which, was a row of auriculas and polyanthus. Beyond were stocks, and other taller flowers and shrubs; and a beautiful damask rose graced the centre. This rose was just budding, and Theodore watched its daily progress with great interest.

One day, the door of the garden being unfortunately left open, a drove of pigs entered, and began to riot on the herbs and flowers. An alarm being sounded, Theodore and the servant-boy rushed upon them, smacking their whips. The whole herd, in affright, took their course across Theodore's flower-bed, on which some of them had before been grazing. Stocks, daisies, and auriculas, were all trampled down, or torn up; and, what was worst of all, a large old sow ran directly over the beautiful rose-tree, and broke off its stem level with the ground. When Theodore came up, and beheld all the mischief, and especially his favorite rose strewed on the soil, rage and grief choked his utterance. After standing a while, the picture of despair, he snatched up a spade that stood near, and with furious haste dug over the whole bed, and whelmed all the relics of

his flowers deep under the soil. This exertion being ended, he burst into tears, and silently left the garden.

His father, who had beheld the scene at a distance, though somewhat diverted at the boy's childish violence, yet began seriously to reflect on the future consequences of such a temper, if suffered to grow up without restraint. He said nothing to him, at the time, but in the afternoon he took a walk with him into a neighboring parish. There was a large wild common, and at the skirts of it a neat farm-house, with fields lying round it, all well fenced, and cultivated in the best manner. The air was sweetened with the bean-flower and clover. An orchard of fine young fruit-trees lay behind the house ; and before it a little garden, gay with all the flowers of the season. A stand of bee-hives was on the southern side, sheltered by a thick hedge of honeysuckle and sweetbrier. The farm-yard was stocked with pigs and poultry. A herd of cows, with full udders, was just coming home, to be milked. Every thing wore the aspect of plenty and good management. The charms of the scene struck Theodore very forcibly, and he expressed his pleasure in the warmest terms.

“ This place,” said his father, “ belongs to a man, who is the greatest example I know of patient fortitude bearing up against misfortune ; and all that you see is the reward of his own perseverance. I am a little acquainted with him ; and we will go in and beg a draught of milk, and try if we can

prevail upon him to tell us his story." Theodore willingly accompanied his father. They were received by the farmer with cordial frankness.

After they were seated, "Mr. Hardman," says Mr. Carleton, "I have often heard of part of your adventures, but never had a regular account of the whole. If you will favor me and my little boy with the story of them, we shall think ourselves much obliged to you."

"Lack-a-day! sir," said he, "there's little in them, worth telling of, as far as I know. I have had my ups and downs in the world, to be sure, but so have many men besides. However, if you wish to hear about them, they are at your service; and I can't say but it gives me pleasure sometimes to talk over old matters, and think how much better things have turned out than might have been expected."

"Now, I am of opinion," said Mr. C., "that from your spirit and perseverance a good conclusion might always have been expected."

"You are pleased to compliment, sir," replied the farmer, "but I will begin without more words."

"You may, perhaps, have heard that my father was a man of good estate. He thought of nothing, poor man! but how to spend it; and he had the uncommon luck to spend it twice over: for when he was obliged to sell it the first time, it was bought in by a relation, who left it to him again, by his will. But my poor father was not a man to take warning. He fell to living as he had done before, and just made his estate and his life hold

out together. He died, at the age of five and forty, and left his family beggars. I believe he would not have taken to drinking, as he did, had it not been for his impatient temper, which made him fret and vex himself for every trifle, and then, he had nothing for it, but to drown his care in liquor.

“It was my lot, to be taken by my mother’s brother, who was a master of a merchant-ship. I served him as an apprentice, several years, and underwent much of the usual hardship of a sailor’s life. He had just made me his mate, in a voyage up the Mediterranean, when he had the misfortune to be wrecked on the coast of Morocco. The ship struck at some distance from shore, and we lay a long stormy night, with the waves dashing over us, expecting every moment to perish. My uncle, and several of the crew, died of fatigue and want, and by the morning, but four of us were left alive. My companions were so much disheartened, that they thought of nothing but submitting to their fate. For my part, I thought life still worth struggling for ; and the weather having become calmer, I persuaded them to join me in making a kind of raft, by the help of which, with much toil and danger, we reached the land. Here we were seized, by the barbarous inhabitants, and carried up the country, for slaves to the emperor. We were employed about some public buildings, made to work very hard, with the whip at our back, and allowed nothing but water and a kind of pulse. A ransom was set on our heads,

but so high, that it seemed impossible for poor friendless creatures, like us, ever to pay it. The thought of perpetual servitude, together with the hard treatment we met with, quite overcame my poor companions. They drooped and died, one after another. I still thought it not impossible to mend my condition, and perhaps to recover my freedom. We worked about twelve hours in the day, and had one holyday in the week. I employed my leisure time, in learning to make mats and flag baskets, in which I soon became so expert, as to have many for sale, and thereby got a little money to purchase better food and several small conveniences. We were afterwards set to work in the emperor's gardens; and here I showed so much good-will and attention, that I got into favor with the overseer. He had a large garden of his own; and he made interest for me to be suffered to work for him alone, on the condition of paying a man to do my duty. I soon became so useful to him, that he treated me more like a hired servant than a slave, and gave me regular wages. I learned the language of the country, and might have passed my time comfortably enough, could I have accommodated myself to their manners and religion, and forgot my native land. I saved all I could, in order to purchase my freedom; but the ransom was so high, that I had little prospect of being able to do it for some years to come. A circumstance, however, happened, which brought it about at once. Some villains one night laid a plot to murder my master

and plunder his house. I slept in a little shed, in the garden, where the tools lay ; and being awakened by a noise, I saw four men break through the fence, and walk up an alley towards the house. I crept out, with a spade in my hand, and silently followed them. They made a hole, with instruments, in the house wall, big enough for a man to enter at. Two of them had got in, and the third was beginning to enter, when I rushed forward, and with a blow of my spade clove the scull of one of the robbers, and gave the other such a stroke on the shoulder, as disabled him. I then made a loud outcry, to alarm the family. My master and his son, who lay in the house, got up, and, having let me in, we secured the two others, after a sharp conflict, in which I received a severe wound with a dagger. My master, who looked upon me as his preserver, had all possible care taken of me ; and, as soon as I was cured, made me a present of my liberty. He would fain have kept me with him, but my mind was so much bent on returning to my native country, that I immediately set out to the nearest seaport, and took my passage in a vessel going to Gibraltar.

“ From this place, I returned in the first ship for England. As soon as we arrived in the Downs, and I was rejoicing at the sight of the white cliffs, a man-of-war’s boat came on board, and pressed into the king’s service all of us who were seamen. I could not but think it hard, that this should be my welcome at home, after a long slavery ; but there was no remedy. I resolved to do my duty

in my station, and leave the rest to Providence. I was abroad during the remainder of the war, and saw many a stout fellow sink under disease and despondence. My knowledge of seamanship got me promoted to the post of a petty officer, and at the peace, I was paid off, and received a pretty sum for wages and prize-money. With this, I set off for London. I had experienced too much distress, from want, to be inclined to squander away my money, so I put it into a banker's hands, and began to look out for some new way of life.

“ Unfortunately, there were ~~some~~ things, of which I had no more experience than a child, and the tricks of London were among these. An advertisement, offering extraordinary advantages to a partner in a commercial concern, who could bring a small capital, tempted me to make inquiry about the matter ; and I was soon cajoled, by a plausible, artful fellow, to venture my whole stock in it. The business was a manufacture, about which I knew nothing at all ; but as I was not afraid of my labor, I set about working as they directed me, with great diligence, and thought all was going on prosperously. One morning, on coming to the office, I found my partners decamped ; and the same day I was arrested for a considerable sum due by the partnership. It was in vain for me to think of getting bail, so I was obliged to go to prison. Here I should have been half starved, but for my Moorish trade of mat-making, by the help of which, I bettered my condition, for some months : when the creditors, and

ing that nothing could be got out of me, suffered me to be set at liberty.

“I was now in the wide world, without a farthing or a friend, but I thanked God that I had health and limbs left. I did not choose to trust the sea again, but preferred my other new trade of gardening ; so I applied to a nursery-man, near town, and was received as a day-laborer. I set myself cheerfully to work, taking care to be in the grounds the first man in the morning, and the last at night. I acquainted my employer with all the practices I had observed in Morocco, and got him, in return, to instruct me in his own. In time, I came to be considered as a skilful workman, and was advanced to higher wages. My affairs were in a flourishing state. I was well fed, and comfortably lodged, and saved money into the bargain. About this time, I fell in company with a young woman at service, very notable and well behaved, who seemed well qualified for a wife to a working man. I ventured to make an offer to her, which proved not disagreeable ; and after we had calculated a little how we were to live, we married. I took a cottage, with an acre or two of land to it, and my wife’s savings furnished our house and bought a cow. All my leisure time, I spent upon my piece of ground, which I made very productive ; and the profits of my cow, with my wages, supported us very well. No mortal, I think, could be happier than I was, after a hard day’s work, by my own fireside, with my wife beside me, and our little infant on my knee.

“ After this way of life had lasted two or three years, a gentleman, who had dealt largely with my master for young plants, asked him if he could recommend an honest, industrious man for a tenant, upon some land that he had lately taken in from the sea. My master, willing to do me a kindness, mentioned me. I was tempted by the proposal, and going down to view the premises, I took a farm upon a lease at a low rent, and removed my family and goods to it, one hundred and fifty miles from London. There was ground enough for the money, but much was left to be done for it in draining, manuring, and fencing. Then it required more stock than I was able to furnish ; so, though unwilling, I was obliged to borrow some money of my landlord, who let me have it, at moderate interest. I began with good heart, and worked late and early to put things in the best condition. My first misfortune was, that the place proved unhealthy to us. I fell into a lingering ague, which pulled me down much, and hindered my business. My wife caught a slow fever, and so did our eldest child, (we then had two, and another soon after.) The poor child died ; and what with grief and illness, my wife had much ado to recover. Then the rot got among my sheep, and carried off the best part of my flock. I bore up against distress as well as I could ; and, by the kindness of my landlord, was enabled to bring things tolerably about again. We regained our health, and began to be seasoned to the climate. As we were cheering ourselves with the prospect of

better times, a dreadful storm arose—it was one night in February ; I shall never forget it—and drove the spring tide with such fury against our sea-banks, that they gave away. The water rushed in with such force, that all was presently covered with water. Two hours before daylight, I was awaked by the noise of the waves dashing against our house, and bursting in at the door. My wife had been confined about a month, and she and I, and the two children, slept on a ground floor. We had just time to carry the children up stairs, before all was afloat in the room. When day appeared, we could see nothing from the windows, but water. All the out-houses, ricks, and utensils were swept away, and all the cattle and sheep drowned. The sea kept rising, and the force of the current bore so hard against our house, that we thought every moment it must fall. We clasped our babes to our breasts, and expected nothing but immediate death. At length, we spied a boat coming to us. With much difficulty it got under our window, and took us in, with a servant-maid and boy. A few clothes, was all the property we saved ; and we had not left the house half an hour, before it fell, and in a minute, nothing was to be seen of it. Not only the farm-house, but the farm itself was gone.

“ I was now again a ruined man ; and, what was worst, I had three partners in my ruin, My wife and I looked at one another, and then at our little ones, and wept. Neither of us had a word of comfort to say. At last, thought I, this country

is not Morocco, however. Here are good souls, that will pity our case, and perhaps relieve us. Then I have a character, and a pair of hands. Things are bad, but they might have been worse. I took my wife by the hand, and knelt down. She did the same. I thanked God for his mercy, in saving our lives, and prayed that he would continue to protect us. We rose up with lightened hearts, and were able to talk calmly about our condition. It was my desire to return to my former master, the nursery-man; but how to convey my family so far, without money, was the difficulty. Indeed, I was much worse than nothing, for I owed a good deal to my landlord. He came down, upon the news of the misfortune, and though his own losses were heavy, he not only forgave my debt, and released me from all obligations, but made me a small present. Some charitable neighbors did the like; but I was most of all affected by the kindness of our late maid-servant, who insisted upon our accepting of a crown, which she had saved out of her wages. Poor soul! we had always treated her like one of ourselves, and she felt for us like one.

“As soon as we had procured some necessities, and the weather was tolerable, we set out, on our long march. My wife carried her infant in her arms. I took the larger child upon my back, and a bundle of clothes in my hand. We could walk but a few miles a day, but we now and then got a lift, in an empty wagon or cart, which was a great help to us. One day, we met with a farmer,

returning with his team from market, who let us ride, and entered into conversation with me. I told him of my adventures, by which he seemed much interested ; and learning that I was skilled in managing trees, he acquainted me that a nobleman in his neighborhood was making great plantations, and would very likely be glad to engage me ; and he offered to carry us to the place. As all I was seeking was a living by my labor, I thought the sooner I got it, the better ; so I thankfully accepted his offer. He took us to the nobleman's steward, and made known our case. The steward wrote to my old master for a character ; and receiving a favorable one, he hired me as principal manager of a new plantation, and settled me and my family in a snug cottage near it. He advanced us somewhat for a little furniture and present subsistence ; and we had once more a *home*. O, sir ! how many blessings are contained in that word, to those who have known the want of it !

“ I entered upon my new employment, with as much satisfaction as if I were taking possession of an estate. My wife had enough to do, in taking care of the house and children ; so it lay with me to provide for all, and I may say that I was not idle. Besides my weekly pay from the steward, I contrived to make a little money, at leisure times, by pruning and dressing gentlemen's fruit-trees. I was allowed a piece of waste ground, behind the house, for a garden, and I spent a good deal of labor in bringing it into order. My old master sent me down, for a present, some

choice young trees and flower-roots, which I planted, and they throve wonderfully. Things went on, almost as well as I could desire. The situation being dry and healthy, my wife recovered her lost bloom, and the children sprung up like my plants. I began to hope that I was almost out of the reach of further misfortune ; but it was not so ordered.

“ I had been three years in this situation, and increased my family with another child, when my lord died. He was succeeded by a very dissipated young man, deep in debt, who presently put a stop to the planting and improving of the estate, and sent orders to turn off all the workmen. This was a great blow to me ; however, I still hoped to be allowed to keep my little house and garden, and I thought I could then maintain myself as a nursery-man and gardener. But a new steward was sent down, with directions to rack the tenants to the utmost. He asked me as much rent for the place as if I had found the garden ready made to my hands : and when I told him it was impossible for me to pay it, he gave me notice to quit immediately. He would neither suffer me to take away my trees and plants, nor allow me any thing for them. His view, I found, was to put in a favorite of his own, and set him up at my expense. I remonstrated against this cruel injustice, but could obtain nothing but hard words. As I saw it would be the ruin of me, to be turned out in that manner, I determined, rather hastily, to go up to London, and plead my

case with my new lord. I took a sorrowful leave of my family, and walking to the next market-town, I got a place on the outside of the stage-coach. When we were within thirty or forty miles of London, the coachman overturned the carriage, and I pitched directly on my head, and was taken up senseless. Nobody knew any thing about me ; so I was carried to the next village, where the overseer had me taken to the parish workhouse. Here I lay a fortnight, much neglected, before I came to my senses. As soon as I became sensible of my condition, I was almost distracted in thinking of the distress my poor wife must be under on my account, not hearing any thing of me. I lay another fortnight, before I was fit to travel ; for, besides the hurt on my head, I had a broken collar-bone, and several bruises. My money had somehow all got out of my pocket, and I had no other means of getting away than by being passed to my own parish. I returned, in sad plight indeed, and found my wife very ill in bed. My children were crying about her, and almost starving. We should now have been quite lost, had I not raised a little money by selling our furniture ; for I was yet unable to work. As soon as my wife was somewhat recovered, we were forced to quit our house. I cried like a child on leaving my blooming garden and flourishing plantations, and was almost tempted to demolish them, rather than another should unjustly reap the fruit of my labors. But I checked myself, and I am glad I did. We took lodgings in a neighboring

village, and I went round among the gentlemen of the country to see if I could get a little employment. In the mean time, the former steward came down to settle accounts with his successor, and was much concerned to find me in such a situation. He was a very able and honest man, and had been engaged by another nobleman to superintend a large improvable estate, in a distant part of the kingdom. He told me, if I would try my fortune with him, once more, he would endeavor to procure me a new settlement. I had nothing to lose, and therefore was willing enough to run any hazard, but I was destitute of means to convey my family to such a distance. My good friend, who was much provoked at the injustice of the new steward, said so much to him, that he brought him to make me an allowance for my garden ; and with that, I was enabled to make another removal. It was to the place I now inhabit.

“ When I came here, sir, all this farm was a naked common, like that you crossed in coming. My lord got an enclosure-bill, for his part of it, and the steward divided it into different farms, and let it, on improving leases, to several tenants. A dreary spot, to be sure, it looked at first, enough to sink a man’s heart to sit down upon it ! I had a little unfinished cottage given me to live in, and, as I had nothing to stock a farm, I was for some years employed as head laborer and planter about the new enclosures. By very hard working and saving, together with a little help, I

was at length enabled to take a small part of the ground I now occupy. I had various discouragements, from bad seasons and other accidents. One year, the distemper carried off four out of seven cows that I kept ; another year I lost two of my best horses. A high wind once almost entirely destroyed an orchard I had just planted, and blew down my largest barn. But I was too much used to misfortunes, to be easily disheartened ; and my way always was, to set about repairing them in the best manner I could, and leave the rest to Heaven. This method seems to have answered, at last. I have now gone on, many years, in a course of continued prosperity, adding field to field, increasing my stock, and bringing up a numerous family, with credit. My dear wife, who was my faithful partner through so much distress, continues to share my prosperous state ; and few couples in the kingdom, I believe, have more cause to be thankful for their lot. This, sir, is my history. You see it contains nothing very extraordinary ; but if it impresses on the mind of this young gentleman the maxim, that patience and perseverance will scarcely fail of a good issue, in the end, the time you have spent in listening to it, will not be entirely lost."

Mr. Carleton thanked the good farmer, very heartily, for the amusement and instruction he had afforded them, and took leave, with many expressions of regard. Theodore and he walked home, talking by the way of what they had heard.

Next morning, Mr. C., looking out of the win-

dow, saw Theodore hard at work, in his garden. He was carefully disinterring his buried flowers, trimming and cleaning them, and planting them anew. The gardener had cut for him a slip of the broken rose-tree, and set it in the middle, to give it a chance for growing. By noon, every thing was laid smooth and neat, and the bed was well filled. All its splendor, indeed, was gone, for the present, but it seemed in a hopeful way to revive again. Theodore looked with pleasure over his work ; but his father felt more pleasure, in witnessing the first fruits of farmer Hardman's story.

THE BIRTH-DAY GIFT.

THE populous kingdom of Ava, in India beyond the Ganges, was once inherited by a minor prince, who was brought up in the luxurious indolence of an Eastern palace. When he had reached the age of seventeen, which, by the laws of that country, was the period of majority [time of full age] for the crown, all the great men of his court, and the governors of the provinces, according to established custom, laid at his feet presents, consisting of the most costly products of art and Nature, that they had been able to procure. One offered a casket of the most precious jewels of Golconda ; another, a curious piece of clock-work made by a European artist ; another, a piece of

the richest silk, from the looms of China ; another, a bezoar-stone, said to be a sovereign antidote against all poisons and infectious diseases ; another, a choice piece of the most fragrant rose-wood, in a box of ebony inlaid with pearls ; another, a golden cruise, full of genuine balsam of Mecca ; another, a courser of the purest breed of Arabia ; and another, a female slave of exquisite beauty. The whole court of the palace was overspread with rarities ; and long rows of slaves were continually passing, loaded with vessels and utensils of gold and silver, and other articles of high price.

At length, an aged magistrate from a distant province made his appearance. He was simply clad in a long cotton robe, and his hoary beard waved on his breast. He made his obeisance before the young monarch, and holding forth an embroidered silken bag, he thus addressed him :—

“ Deign, great king, to accept the faithful homage and fervent good wishes of thy servant on this important day, and, with them, the small present I hold in my hand. Small, indeed, it is in show, but not so, I trust, in value. Others, have offered what may decorate thy person ; here, is what will impart perpetual grace and lustre to thy features. Others, have presented thee with rich perfumes ; here, is what will make thy name sweet and fragrant to the latest ages. Others, have given what may afford pleasure to thine eyes ; here, is what will nourish a source of never-failing pleasure within thy breast. Others, have furnished thee with preservatives against bodily contagion ; here,

is what will preserve thy better part, uncontaminated. Others, have heaped round thee the riches of a temporal kingdom ; this, will secure thee the treasures of an eternal one."

He said, and drew from the purse a book containing *The Moral Precepts of the Sage Zendar*, the wisest and most virtuous man the East had ever beheld. " If (he proceeded) my gracious sovereign will condescend to make this his constant companion, not an hour can pass, in which its perusal may not be a comfort and a blessing. In the arduous duties of thy station, it will prove a faithful guide and counsellor. Amidst the allurements of pleasure, and the incitements of passion, it will be an incorruptible monitor, that will never suffer thee to err, without warning thee of thy error. It will render thee a blessing to thy people, and blessed in thyself ; for what sovereign can be the one without the other ?"

He then returned the book to its place, and, kneeling, gave it into the hands of the king. He received it, with respect and benignity, and history affirms that the use he made of it corresponded with the wishes of the donor.

THE BULLIES.

As young Francis was walking through a village, with his tutor, they were annoyed by two or three cur dogs, that came running after them

with looks of the utmost fury, snarling and barking, as if they would tear their throats, and seeming, every moment, ready to fly upon them. Francis, every now and then, stopped, and shook his stick at them ; upon which the curs retreated, as fast as they came ; but, as soon as he turned about, they were at his heels, again. This lasted till they came to a farm-yard, through which their road lay, and in which a large mastiff was lying down, at his ease, in the sun. Francis was almost afraid to pass him, and kept as close to his tutor, as possible ; but the dog took not the least notice of them.

Presently, they came near a flock of geese, and were assailed with hissings and pursued, some way, by these foolish birds, which, stretching out their long necks, made a very ridiculous figure. Francis only laughed at them, though he was tempted to give the foremost a switch across his neck. A little further, was a herd of cows, and a bull. Francis looked upon them, with some degree of apprehension ; but they kept quietly grazing, and did not take their heads from the ground, as he passed.

It is a good thing, said Francis to his tutor, that mastiffs and bulls are not so quarrelsome as curs and geese ; but what can be the reason of it ?

The reason, replied his tutor, is, that certain animals, possessing no confidence in their own strength and courage, and knowing themselves liable to injury from most of those that come in their way, think it safest to act the part of bullies ;

and to make a show of attacking those, of whom, in reality, they are afraid. Whereas, animals, which are conscious of force sufficient for their own protection, suspecting no evil designs from others, entertain none themselves, but maintain a dignified composure.

Thus you will find it among mankind. Weak, mean, petty, characters are suspicious, snarling, and petulant. They raise an outcry against their superiors in talents and reputation, of whom they stand in awe ; and put on airs of defiance and insolence, through mere cowardice. But the truly great are calm and inoffensive. They fear no injury, and offer none. They even suffer slight attacks to go unnoticed, conscious of their power to right themselves, whenever the occasion shall seem to require it.

GOOD COMPANY.

BE sure, Frederick, always to keep *good company*, was the final admonition of Mr. Lofty, on dismissing his son to the university.

I entreat you, Henry, always to choose *good company*, said Mr. Manly, on parting with his son, to an apprenticeship in a neighboring town.

But it was impossible for two people to mean more differently by the same words.

In Mr. Lofty's idea, good company was that of persons superior to ourselves in rank and fortune. By this, alone, he estimated it ; and the

degrees of comparison, better and best, were made exactly to correspond to such a scale. Thus, if an esquire was *good* company, a baronet was *better*, and a lord *best of all*, provided that he was not a *poor* lord ; for, in that case, a rich gentleman might be at least as good. For as, according to Mr. Lofty's maxim, the great purpose, for which companions were to be chosen, was to advance a young man in the world, by their credit and interest, those were to be preferred who afforded the best prospects in this respect.

Mr. Manly, on the other hand, understood by *good* company, that which was improving to the morals and understanding ; and by the *best*, that which, to a high degree of these qualities, added true politeness of manners. As superior advantages in education, to a certain point, accompany superiority of condition, he wished his son to prefer, as companions, those whose situation in life had afforded them the opportunity of being well educated ; but he was far from desiring him to shun connexions with worth and talents, wherever he should find them.

Mr. Lofty had an utter aversion to *low company*, by which he meant inferiors, people of no fashion and figure, shabby fellows, whom nobody knows.

Mr. Manly equally disliked *low company*, understanding by it persons of mean habits and vulgar conversation.

A great part of Mr. Manly's good company, was Mr. Lofty's low company ; and not a few of

Mr. Lofty's very best company, were Mr. Manly's very worst.

Each of the sons understood his father's meaning, and followed his advice.

Frederick, from the time of his entrance at the university, commenced what is called a *tuft-hunter*, from the tuft in the cap worn by young noblemen. He took pains to insinuate himself into the good graces of all the young men of high fashion in his college, and became a constant companion, in their schemes of frolic and dissipation. They treated him with an insolent familiarity, often bordering upon contempt; but, following another maxim of his father, "one must stoop to rise," he took it all in good part. He totally neglected study as unnecessary, and indeed inconsistent with his plan. He spent a great deal of money, with which his father, finding that it went in *good company*, at first supplied him freely. In time, however, his expenses amounted to so much, that Mr. Lofty, who kept good company too, found it difficult to answer his demands. A considerable sum that he lost at play with one of his noble friends, increased the difficulty. If it were not paid, the disgrace of not having discharged a *debt of honor* would lose him all the favor he had acquired; yet the money could not be raised without greatly embarrassing his father's affairs.

In the midst of this perplexity, Mr. Lofty died, leaving behind him a large family, and very little property. Frederick came up to town, and soon dissipated, in *good company*, the scanty portion

that came to his share. Having neither industry, knowledge, nor reputation, he was then obliged to become an humble dependant on the great, flattering all their follies, and ministering to their vices, treated by them with mortifying neglect, and equally despised and detested by the rest of the world.

Henry, in the mean time, entered with spirit into the business of his new profession, and employed his leisure in cultivating an acquaintance with a few select friends. These, were partly young men in a situation similar to his own, partly persons already settled in life, but all distinguished by propriety of conduct, and improved understandings. From all of them, he learned something valuable; but he was more particularly indebted to two of them, who were in a station of life inferior to that of the rest. One was a watchmaker, an excellent mechanic and tolerable mathematician, and well acquainted with the construction and use of all the instruments employed in experimental philosophy. The other was a young druggist, who had a good knowledge of chemistry, and frequently employed himself in chemical operations and experiments. Both of them were men of very decent manners, and took a pleasure in communicating their knowledge to such as showed a taste for similar studies. Henry frequently visited them, and derived much useful information from their instructions, for which he ever expressed great thankfulness. These various occupations and good examples effectually preserved him

from the errors of youth, and he passed his time with credit and satisfaction. He had the same misfortune with Frederick, just as he was ready to come out into the world, of losing his father, upon whom the support of the family chiefly depended ; but, in the character he had established, and the knowledge he had acquired, he found an effectual resource. One of his young friends proposed to him a partnership in a manufacture he had just set up at considerable expense, requiring for his share only the exertion of his talents and industry. Henry accepted the offer, and made such good use of the skill in mechanics and chemistry he had acquired, that he introduced many improvements into the manufactory, and rendered it a very profitable concern. He lived prosperous and independent, and retained in manhood all the friendship of his youth.

THE DOG BALKED OF HIS DINNER.

A TALE.

“ Think yourself sure of nothing till you ’ve got it : ”

THIS is the lesson of the day.

In metaphoric language, I might say,
 Count not your bird before you ’ve shot it,
 Quoth proverb, “ ’twixt the cup and lip
 There ’s many a slip.”

Not every guest invited sits at table,
So says *my* fable.

A man once gave a dinner to his friend ;
His friend '—his patron, I should rather think,
By all the loads of meat and drink,
And fruits and jellies without end,
Sent home the morning of the feast.
Jowler, his dog, a social beast,
Soon as he smelt the matter out, away
Scampers to old acquaintance Tray ;
And with expressions kind and hearty,
Invites him to the party.

Tray wanted little pressing to a dinner ;
He was, in truth, a gormandizing sinner.
He licked his chops and wagged his tail ;
“ Dear friend ! (he cried,) I will not fail ;
But what's your hour ?”
“ We dine at four ;
But if you come an hour too soon,
You'll find there's something to be done.”

His friend withdrawn, Tray, full of glee,
As blithe as blithe could be,
Skipt, danced, and played full many an antic,
Like one half frantic ;
Then sober in the sun lay winking,
But could not sleep for thinking.
He thought o'er every dainty dish,
Fried, boiled, and roast,
Flesh, fowl, and fish,
With tripes and toast,

Fit for a dog to eat ;
 And in his fancy made a treat,
 Might grace a bill of fare
 For my Lord Mayor.

At length, just on the stroke of three,
 Forth sallied he ;
 And through a well-known hole,
 He slyly stole
 Pop on the scene of action.
 Here he beheld, with wondrous satisfaction,
 All hands employed in drawing, stuffing,
 Skewering, spitting, and basting,
 The red-faced cook sweating and puffing,
 Chopping, mixing, and tasting.

Tray skulked about, now here, now there,
 And peeped in this, and smelt at that,
 And licked the gravy and the fat,
 And cried, " O rare ! how I shall fare !"
 But Fortune, spiteful as Old Nick,
 Resolved to play our dog a trick.
 She made the cook
 Just cast a look
 Where Tray, beneath the dresser lying,
 His promised bliss was eyeing.

A cook while cooking is a sort of fury ;
 A maxim worth remembering, I assure ye.
 Tray found it true,
 And so may you,

If e'er you choose to try.
 " How now ! (quoth she,) what's this I spy !

A nasty cur ! Who let him in ?
Would he were hanged with all his kin !
A pretty kitchen guest indeed !
But I shall pack him off with speed.”
So saying, on poor Tray she flew,
And dragged the culprit forth to view ;
Then, to his terror and amazement,
Whirled him like lightning through the casement.

THE UMBELLIFEROUS PLANTS.

Tutor—George—Harry.

H. WHAT plant is that man gathering under the hedge ?

G. I do n't know ; but boys call the stalks kecksies, and blow through them.

H. I have seen them ; but I want to know the plant.

G. Will you please to tell us, sir, what it is ?

T. It is hemlock.

G. Hemlock is poisonous, is it not ?

T. Yes, in some degree ; and it is also a medicine. That man is gathering it for the apothecaries.

H. I should like to know it.

T. Well, then, go and bring one.

[Harry brings it.

G. I think I have seen a great many of this sort.

T. Perhaps you have ; but there are many

other kinds of plants, extremely like it. It is one of a large family, called the *umbelliferous*, which contains food, physic, and poison. It will be worth while for you to know something about them, so let us examine this hemlock closely. You see this tall hollow stalk, which divides into several branches, from each of which, spring spokes or *rundles*, as they are called, of flower-stalks. You see they are like rays from a circle, or the spokes of a wheel.

H. Or like the sticks of an umbrella.

T. True ; and they are called *umbels*, which has the same derivation. If you pursue one of these rundles or umbels, you will find that each stick or spoke terminates in another set of smaller stalks, each of which bears a single small flower.

G. They are small ones, indeed.

T. But if you look sharply, I dare say your eyes are good enough to distinguish that they are divided into five leaves, and furnished with five chives, [or stamens,] and two pistils in the middle.

H. I can see them.

G. And so can I.

T. The pistils are succeeded by a sort of fruit, which is a twin seed joined in the middle, as you may see in this rundle that is past flowering. Here I divide one of them into two.

G. Would each of these grow ?

T. Yes. Well, this is the structure of the flowering part of all the umbelliferous tribe. Now for the leaf. Pluck one.

H. Is this one leaf, or many ?

T. It is properly one, but it is cut and divided into many portions. From this mid-rib spring smaller leaves set opposite each other ; and from the rib of each of these, proceed others, which themselves are also divided. These are called doubly or trebly pinnated leaves : and most of the umbelliferous plants, but not all, have leaves of this kind.

H. It is like a parsley-leaf.

T. True ; and parsley is of the same tribe, and hemlock and others are sometimes mistaken for it.

G. How curiously the stalk of this hemlock is spotted.

T. Yes. That is one of the marks by which it is known. It is also distinguished by its peculiar smell, and by other circumstances, which you can only understand when you have compared a number of the tribe. I will now tell you about some others, the names of which you are probably acquainted with. In the first place, there are carrots and parsnips.

H. Carrots and parsnips ! they are not poisons, I am sure.

G. I remember, now, that carrots have such a leaf as this.

T. They have. It is the *roots* of these, you know, that are eaten. But we eat the leaves of parsley and fennel, which are of the same class. Celery is another, the *stalks* of which are chiefly used, made white by trenching up the earth about them. The stalks of angelica are used differently.

H. I know how,—candied.

T. Yes. Then there are many, of which the *seeds* are used. There is caraway.

H. What, the seeds that are put in cakes and comfits ?

T. Yes. They are warm and pungent to the taste ; and so are the seeds of many others of the umbelliferous plants, as coriander, fennel, wild carrot, angelica, anise, cummin, and dill. All these are employed in food or medicine, and are good for warming or strengthening the stomach.

G. Those are pleasant medicines enough.

T. They are ; but you will not say the same of some others of the class, which are noted medicines, too ; such as the plant yielding *asafoetida*, and several more, from which what are called the fetid gums are produced.

G. *Asafoetida* !—that's unpleasant stuff, I know ; does it grow here ?

T. No ; this and most of the sweet seeds I before mentioned come from abroad. Now I will tell you of some of the poisons.

H. Hemlock is one that we know already.

T. Yes. Then there is another kind that grows in water, and is more poisonous, called water-hemlock. Another is a large plant growing in ditches, with leaves extremely like celery, called hemlock-dropwort. Another, common in drier situations, and distinguished by leaves less divided than most of the class, is cow-parsnip, or madnep. Of some of these, the leaves, of others, the roots, are most poisonous. Their effects are to make the head giddy, bring on stu-

pidity or delirium, and cause violent sickness. The Athenians used to put criminals to death by making them drink the juice of a kind of hemlock growing in that country, as you may read in the life of that excellent philosopher, Socrates, who was killed in that manner.

H. What was he killed for ?

T. Because he was wiser and better than his fellow-citizens. Among us, it is only by accident that mischief is done by these plants. I remember a melancholy instance of a poor boy, who, in rambling about the fields with his little brothers and sisters, chanced to meet with a root of hemlock-dropwort. It looked so white and nice, that he was tempted to eat a good deal of it. The other children also ate some, but not so much. When they got home they were all taken very ill. The eldest boy, who had eaten most, died in great agony. The others recovered, after suffering a great deal.

G. Is there any way of preventing their bad effects ?

T. The best way is to clear the stomach as soon as possible by a strong emetic, and large draughts of warm water. After that, vinegar is useful in removing the disorder of the head.

H. But are the roots sweet or pleasant, that people should be tempted to eat them ?

T. Several of them are. There is a small plant of the tribe, the root of which is much sought after by boys, who dig for it with their knives. It is round, and called earth-nut or pig-nut.

G. But that is not poisonous, I suppose.

T. No ; but it is not very wholesome. I believe, however, that the roots of the most poisonous, become innocent by boiling. I have heard that boiled hemlock-roots, are as good as carrots.

H. I think I should not like to eat them, however. But pray why should there be any poisons at all ?

T. What we call poisons, are only hurtful to particular animals. They are the proper food of others, and no doubt do more good than hurt in the creation. Most of the things that are poisonous to us in large quantities, are useful medicines in small ones ; and we have reason bestowed upon us, to guard us against mischief. Other animals, in general, refuse by instinct, what would prove hurtful to them. You see, beneath yonder hedge, a great crop of tall, flourishing plants, with white flowers. They are of the umbelliferous family, and are called wild cicely, or cow-weed. The latter name is given them, because the cows will not touch them, though the pasture be never so bare.

H. Would they poison them ?

T. Perhaps they would ; at least, they are not proper food for them. We will go and examine them, and I will show you how they differ from hemlock, for which they are sometimes mistaken.

G. I should like to get some of these plants, and dry them.

T. You shall, and write down the names of them all, and learn to know the innocent from the hurtful.

Envy and Emulation.

G. That will be very useful.

T. It will. Remember now the general character of the umbelliferous class. The flower-stalks are divided into spokes or umbels, which are again divided into others, each of them terminated by a small five-leaved flower, having five chives and two pistils, succeeded by a twin seed. Their leaves are generally finely divided. You will soon know them, after having examined two or three of the tribe. Remember, too, that they are a *suspicious race*, and not to be made free with, till you are well acquainted with them.

ENVY AND EMULATION.

AT one of the celebrated schools of painting, in Italy, a young man, named Guidotto, produced a piece so excellent, that it was the admiration of the masters in the art, who all declared it to be their opinion, that he could not fail of rising to the summit of his profession, should he proceed as he had begun.

This performance, was looked upon with very different eyes, by two of his fellow-scholars. Brunello, the elder of them, who had himself acquired some reputation in his studies, was mortified, in the highest degree, at this superiority of Guidotto; and, regarding all the honor his rival had acquired, as so much taken from himself, he conceived the most rancorous dislike of him, and longed

for nothing so much, as to see him lose the credit he had gained. Afraid openly to decry the merit of a work, which had obtained the approbation of the best judges, he threw out secret insinuations that Guidotto had been assisted in it, by one or other of his masters ; and he affected to represent it as a sort of lucky hit, which the reputed author would probably never equal.

Not so Lorenzo. Though a very young proficient in the art, he comprehended, in its full extent, the excellence of Guidotto's performance, and became one of the sincerest of his admirers. Fired with the praises he saw him receive on all sides, he ardently longed, one day, to deserve the like. He placed him before his eyes, as a fair model, which it was his highest ambition to arrive at equalling ; for as to excelling him, he could not, as yet, conceive the possibility of it. He never spoke of him but with rapture, and could not bear to hear the detractions of Brunello.

But Lorenzo did not content himself with words. He entered with his whole soul into the career of improvement ; was first and last of all the scholars in the designing-room ; and devoted to practice, at home, those hours which the other youths passed in amusement. It was long before he could please himself with any of his attempts, and he was continually repeating over them, "Alas ! how far distant is this, from Guidotto's !" At length, however, he had the satisfaction of becoming sensible of progress ; and having received considerable applause on account of one of his performances,

he ventured to say to himself, "And why may not I, too, become a Guidotto?"

Meanwhile, Guidotto continued to bear away the palm from all competitors. Brunello struggled, a while, to contest with him, but at length gave up the point, and consoled himself, under his inferiority, by ill-natured sarcasm and petulant criticism. Lorenzo worked away in silence, and it was long before his modesty would suffer him to place any piece of his in view, at the same time with one of Guidotto's.

There was a certain day in the year, in which it was customary for all the scholars to exhibit their best performance in a public hall, where their merit was solemnly judged by a number of select examiners, and a prize of value was awarded to the most excellent. Guidotto had prepared for this anniversary with a piece which was to excel all he had before executed. He had just finished it, on the evening before the exhibition, and nothing remained but to heighten the coloring by means of a transparent varnish. The malignant Brunello contrived, artfully, to convey into the vial, containing this varnish, some drops of a caustic preparation, the effect of which, would be entirely to destroy the beauty and splendor of the piece. Guidotto laid it on by candle-light, and then, with great satisfaction, hung up his picture in the public room against the morrow.

Lorenzo, too, with beating heart, had prepared himself for the day. With vast application, he had finished a piece, which he humbly hoped

might appear not greatly inferior to some of Guidotto's earlier performances.

The important day had now arrived. The company assembled, and were introduced into the great room, where the light had just been fully admitted by drawing up a curtain. All went up, with raised expectations, to Guidotto's picture, when, behold ! instead of the brilliant beauty they had conceived, there was nothing but a dead surface of confused and blotched colors. "Surely, (they cried,) this cannot be Guidotto's !" The unfortunate youth himself came up, and, on beholding the dismal change of his favorite piece, burst out into an agony of grief, and exclaimed that he was betrayed and undone. The vile Brunello, in a corner, was enjoying his distress. But Lorenzo was little less affected than Guidotto himself. "Trick ! knavery !" he cried. "Indeed, gentlemen, this is not Guidotto's work. I saw it, when only half finished, and it was a most charming performance. Look at the outline, and judge what it must have been, before it was so basely injured."

The spectators were all struck with Lorenzo's generous warmth, and sympathized in the disgrace of Guidotto ; but it was impossible to adjudge the prize to his picture in the state in which they beheld it. They examined all the others attentively, and that of Lorenzo, till then an unknown artist to them, gained a great majority of suffrages. The prize was therefore awarded to him ; but Lorenzo, on receiving it, went up to Guidotto, and presenting it to him, said, "Take what merit would

undoubtedly have acquired for you, had not the basest malice and envy defrauded you of it. To me it is honor enough to be accounted your second. If hereafter I may aspire to equal you, it shall be by means of fair competition, not by the aid of treachery."

Lorenzo's nobleness of conduct, excited the warmest encomiums among the judges, who at length determined, that for this time there should be two equal prizes distributed; for that, if Guidotto had deserved the prize of painting, Lorenzo was entitled to that of virtue.

WISE MEN.

"You may remember, Arthur, (said Mr. C. to his son,) that, some time ago, I endeavored to give you a notion of what a *great man* was. Suppose we now talk a little about *wise men*?"

"With all my heart, sir," replied Arthur.

Mr. C. A wise man, then, is *he who pursues the best ends, by the most proper means*. But, as this definition may be rather too abstract, to give you a clear comprehension of the thing, I shall explain it to you by examples. What do you think is the best end a man can pursue in life?

A. I suppose, to make himself happy.

Mr. C. True. And as we are so constituted, that we cannot be happy ourselves without making others happy, the best end of living is to pro-

duce as much general happiness, as lies in our power.

A. But that is *goodness*, is it not ?

Mr. C. It is ; and therefore wisdom includes goodness. The wise man always intends what is good, and employs skill or judgement in attaining it. If he were to pursue the best things weakly, he could not be wise ; any more than if he were to pursue bad or indifferent things judiciously. One of the wisest men I know, is our neighbor, Mr. Freeland.

A. What ! the justice ?

Mr. C. Yes. Few men have succeeded more perfectly in securing their own happiness, and promoting that of those around them. Born to a competent estate, he early settled upon it, and began to improve it. He reduced all his expenses, within his income, and indulged no taste that could lead him into excesses, of any kind. At the same time, he did not refuse any proper and innocent pleasures, that came in his way ; and his house has always been distinguished for decent cheerfulness and hospitality. He applied himself, with diligence, to mending the morals and improving the condition of his dependants. He studied, attentively, the laws of his country, and qualified himself for administering justice with skill and fidelity. No one sooner discovers where the right lies, or takes surer means to enforce it. He is the person to whom the neighbors, of all degrees, apply for counsel in their difficulties. His conduct is always consistent and uniform ; never vio-

lent, never rash, never in extremes, he always deliberates before he acts, and then acts with firmness and vigor. The peace and good order of the whole neighborhood materially depend upon him ; and upon every emergency, his opinion is the first thing inquired after. He enjoys the respect of the rich, the confidence of the poor, and the good-will of all.

A. But I have heard some people reckon old Harpy, as wise a man as he.

Mr. C. It is a great abuse of words, to call Harpy a wise man. He is of another species—a *cunning man* ; who is to a wise man, what an ape is to a human creature—a bad resemblance.

A. He is very clever, though ; is he not ?

Mr. C. Harpy has a good natural understanding, a clear head, and a cool temper ; but his only end in life, has been, to raise a fortune, by base and dishonest means. Being thoroughly acquainted with the tricks and artifices of the law, he employed his knowledge, to take undue advantages of those who intrusted him with the management of their affairs ; and under color of assisting them, he contrived to get possession of all their property. Thus, he has become extremely rich, lives in a great house, with a number of servants, is even visited by persons of rank, yet is universally detested and despised, and has not a friend in the world. He is conscious of this, and is wretched. Suspicion and remorse continually prey upon his mind. Of all, whom he has cheated, he has deceived himself the most ; and has proved himself

as much a fool, in the end he has pursued, as a knave, in the means.

A. Are not men of great learning and knowledge wise men?

Mr. C. They are so, if that knowledge and learning are employed to make them happier and more useful. But it too often happens that their speculations are of a kind, neither beneficial to themselves nor to others; and they often neglect to regulate their tempers, while they improve their understandings. Some men of great learning have been the most arrogant and quarrelsome of mortals, and as foolish and absurd in their conduct, as the most untaught of their species.

A. But is not a philosopher and a wise man the same thing?

Mr. C. A philosopher is properly a *lover of wisdom*; and if he searches after it, with a right disposition, he will probably find it oftener than other men. But he must practise, as well as know, in order to be truly wise.

A. I have read of the seven wise men of Greece. What were they?

Mr. C. They were men distinguished for their knowledge and talents, and some of them for their virtue, too. But a wiser than them all, was Socrates, whose chief praise it was, that he turned philosophy from vain and fruitless disputation, to the regulation of life and manners, and that he was himself a great example of the wisdom he taught.

A. Have we had any person lately very remarkable for wisdom?

Mr. C. In my opinion, few wiser men have ever existed, than the late Dr. Benjamin Franklin. From the humble station of a journeyman printer, to the elevated one of ambassador plenipotentiary from his Country to the court of France, he always distinguished himself by sagacity in discovering, and good sense in practising, what was most beneficial to himself and others. He was a great natural philosopher, and made some very brilliant discoveries, but it was ever his favorite purpose, to turn every thing to use, and to extract some practical advantage from his speculations.

He thoroughly understood *common life*, and all that conduces to its comfort ; and he has left behind him treasures of domestic wisdom, superior, perhaps, to any of the boasted maxims of antiquity. He never let slip any opportunity of improving his knowledge, whether of great things or of small ; and was equally ready to converse, with a day-laborer, and a prime minister, upon topics from which he might derive instruction. He rose to wealth, but obtained it by honorable means. He prolonged his life, by temperance, to a great age, and enjoyed it to the last. Few men knew more than he, and none employed knowledge to better purposes.

A. A man, then, I suppose, cannot be wise, without knowing a great deal.

Mr. C. If he knows every thing belonging to his station, it is wisdom enough ; and a peasant may be as truly wise, in his place, as a statesman or legislator. You remember that fable of Gay,

in which a shepherd gives lessons of wisdom to a philosopher.

A. O yes! it begins—

“Remote from cities lived a swain.”

Mr. C. True. He is represented as drawing all his maxims of conduct, from observation of brute animals. And they, indeed, have universally that character of wisdom, of pursuing the ends best suited to them by the most proper means. But this is owing to the impulse of unerring instinct. Man has reason for his guide, and his wisdom can only be the consequence of the right use of his reason. This will lead him to virtue. Thus the fable we have been mentioning, rightly concludes with—

“Thy fame is just, the sage replies,
Thy *virtue* proves thee *truly wise*.”

GLOSSARY, OR, EXPLANATIONS.

Alexander the Great,—"Macedonia's madman,"—a celebrated king of Macedonia, who was born about 355 years B. C., and died in the thirty-second year of his age.

Alfred the Great, a wise and good king of England, who was born A. D. 849, and died A. D. 900. His history is said to present "one of the most perfect examples on record of the able and patriotic monarch united with the virtuous man." He was so celebrated for his love of truth, that he was called "Alfred the truth-teller." For a notice of him, see the second volume of 'The Pursuit of Knowledge under Difficulties,' being volume xv. of the larger series of 'THE SCHOOL LIBRARY.'

Arabian Nights, or *The Thousand and One Nights*, a celebrated collection of Eastern tales.

Arragon, a kingdom of Spain.

Auricula, a flower of great beauty, sometimes called also bear's ear, and cowslip, a native of the mountains of Switzerland, Austria, Syria, the Caucasus, &c.

Ava, a kingdom in India, also called Birmah.

Balsam of Mecca, an aromatic substance, extracted from various trees, and supposed to possess healing powers; first brought from Mecca, a city of Arabia, whence its name.

Banana, a plant which grows in warm countries, the fruit of which is very agreeable, luscious, and of an acid flavor.

Bell-flower, a pretty flower, so called from its shape.

Bread-fruit, the fruit of a tree growing in warm or tropical countries, and which is used by the Natives instead of bread. It is about the size and shape of a child's head, and the eatable part is as white as snow, and somewhat of the consistence of new bread.

Brobdignagians, the inhabitants of a fabled country of giants.

Campanula, a little bell, the bell-flower.

Castile, a kingdom of Spain.

Cæsar, the family name of the first five emperors of Rome, and the surname given to the next seven. Two are mentioned in this volume. *Julius*, the first emperor, was born

100 years before Christ, and is said to have been victorious in five hundred battles. He wrote Commentaries on the wars in which he was engaged, on the spot where his battles were fought. He was assassinated, in the 56th year of his age. *Augustus Octavianus Cæsar*, the second emperor, was nephew to Julius Cæsar, and born, B. C. 62. He died, A. D. 14, in the 76th year of his age.

Chest, (*public*,) the public funds or treasury, common stock.

China, a large empire in Asia, supposed to contain nearly two hundred and fifty millions of inhabitants.

Chives, a name sometimes applied to the stamens of flowers.

Class, Order, Genus, Species, Family, &c. In Natural History, animals, plants, minerals, &c., are arranged in different divisions, for convenience in systematizing them. The objects are first arranged in Classes, each Class is divided into Orders, each Order into Genera, each Genus into Species, and each Genus and Species sometimes into Subgenera or Subspecies. The term Family is sometimes used instead of Genus, and objects are often arranged in Families.

Clever, fit, suitable, skilful, dexterous, ingenious, ready. In New England, this word is used to signify good-natured, obliging, possessing an agreeable mind or disposition.

Collar-bone, the bone connecting the shoulder-blade and breast-bone.

Cone, or *Fir-apple*, fruit of the pine and other similar trees.

Crab, a wild apple, so called from its crab or rough taste.

Crocodile, a large animal of the lizard tribe, covered with hard, thick, horny, and impenetrable scales. It inhabits the rivers of Asia and Africa.

Cromwell, Oliver, a celebrated statesman and general, who rose from a private station to be the supreme ruler of England. He was born in 1599, and in 1653 was declared sole governor of the Commonwealth, under the name of lord protector. He died in 1658. For a notice of Cromwell, see the first volume of 'The Pursuit of Knowledge under Difficulties,' in the larger series of 'THE SCHOOL LIBRARY.'

Cupids, infants represented with wings, and armed with bows and arrows.

Dame-school, a school for young children, similar to our primary schools.

Dipsas, a serpent whose bite is said to produce a thirst terminating in death.

Downs, banks or elevations of sand ; a celebrated anchorage ground for ships, on the southeast coast of England.

East, (the.) The countries situated in Asia, being east of Europe, are generally spoken of as *the East*, or the Eastern or Oriental world.

East Indian, native of India, or the East Indies, as that country is frequently termed.

Enclosure bill, a law allowing a person to enclose that portion of a common, or other public land, which belongs to him.

English money is calculated in pounds, (marked £.,) shillings, pence, and farthings. There are also guineas and crowns.

A pound contains 20 shillings, and is worth about 4 dollars 87 cents.

" shilling " 12 pence, " " " 24½ "

" penny " 4 farthings " " " 2 "

" farthing is worth about ½ "

" guinea is worth about 4 dollars 75 cents. A crown, about 1 dollar 15 cents.

Epaminondas, a celebrated Grecian hero, who lived about 350 years before Christ. He was king of Thebes. His love of truth was so great, that he never disgraced himself by a falsehood.

Eumæus, a herdsman, steward of Ulysses, the Grecian hero.

Ganges, a celebrated river of Asia.

Grand Signior, the Sultan, or Supreme Ruler of the Turks, who resides at Constantinople.

Halcyon, or *Alcyon*, an ancient female who is said to have thrown herself into the sea on hearing of her husband's being drowned, and to have been changed, with him, into birds of the same name, which kept the waters calm and serene while building their nests, and sat on their nests on the sea, for seven, eleven, or fourteen days. The bird is now called the kingfisher. The word halcyon is now used to signify calm, serene, peaceful, as halcyon days, days of peace and tranquillity.

Hawking, catching birds by means of hawks trained for the purpose, and let loose on the prey ; called also falconry.

Henry IV., a celebrated king of France, who was born in the year 1583, and was assassinated in 1610. He is said to have been the best king France ever had.

Hic, hæc, hoc, three Latin words, meaning this ; the first

applied to males, the second to females, and the last to things neither male nor female.

Ibex, the wild goat.

Indictment, a written accusation or formal charge of a crime or offence, presented by a grand jury to a court, against any person.

Japan, a cluster of islands at the eastern extremity of Asia, northeast from China, and east of Chinese Tartary.

Kilda, (*St.*), one of the islands called the Hebrides or Western Islands, situated northwest of Scotland, and about one hundred and forty miles from the mainland. It gives its name to the whole group.

Lancet, a sharp-pointed two-edged instrument, used by physicians to bleed people.

Lapland, a country at the extreme north part of Europe, where it is very cold.

Liliputians, inhabitants of Liliput, a fabled country of dwarfs.

Macaws, beautiful birds of the parrot tribe.

Macocos, *Macacus*, *Macaucos*, or *Macaques*, animals of the monkey tribe.

Mauritania, the ancient name for the western part of Africa, the natives of which were called Moors, a name which they still retain. The northern part of this region is now called Morocco.

Midrib, the large central rib or vein of a leaf.

Mogul, or *Great Mogul*, the ruler of a nation which formerly existed in Asia, called Mongolia, the people of which were called Mongols.

Mohammedans, followers of Mohammed, a celebrated impostor, who was born at Mecca, in Arabia, A. D. 569, and died at Medina, in the same country, A. D. 632. He was the founder of a system of religious belief, which is still adhered to by the Turks.

Natural History, the history of animals, plants, and minerals.

Neptune, the fabled god of the sea.

Nile, the only river in Egypt.

Nonsuch, or *Nonesuch*, none like it, an extraordinary thing.

Odyssey, a celebrated poem, written by Homer.

Palmetto, the cabbage tree, or cabbage-palm, a species of the palm tree, which grows to the height of forty or fifty feet.

Penn. William, the celebrated founder of Pennsylvania, was born in London, in 1644. He died in 1718.

Peter, the Great, czar or emperor of Russia, was born in 1672, and died in 1725. See vol. xv., of the larger series of "THE SCHOOL LIBRARY."

Pinnated, winged or feathered, composed of several small or partial leaves, or leaflets, arranged on each side of a stalk, like the rose.

Pistil, the stalk rising in the centre of most flowers, and consisting of the germ, style, and stigma.

Plumb-line, a line, suspended by one end and with a weight at the other, used to show the exactly perpendicular position of bodies.

Polyphemus, a fabled giant, who had but one eye, in the middle of the forehead, and fed upon human flesh.

Primary colors, the seven colors of the rainbow ; so called, because all other colors are formed by combinations of them.

Prize money, the share of the proceeds of prizes taken by a vessel in war, and distributed among the officers and crew of the victorious vessel.

Reindeer, a deer with large horns, which inhabits very cold countries, and is used by the inhabitants for drawing sledges over the snow.

Rhinoceros, a very large beast inhabiting Asia and Africa, the largest of all quadrupeds except the elephant, having a horn on its snout, and a very hard skin full of wrinkles.

River Horse, the Hippopotamus.

Rook, a bird of the crow family.

Saardam, a village situated a few miles from Amsterdam, in Holland, where there is a great ship-yard.

Shift, an expedient, last resource, artifice.

Snap dragon, a kind of play in which brandy is set on fire and raisins thrown into it, which those who are unused to the sport are afraid to take out ; but which may be safely snatched by a quick motion and put blazing into the mouth, on closing which, the blaze is instantly put out.

Spirits of wine, a highly intoxicating liquor, obtained by distilling wine and other spirits.

Stamen, that part of a flower which rises up in the flower-cup, and contains the pollen, or fruitful powder. It consists of the filament or stalk and the anther. The pollen is on the anther.

Stunted, hindered from growing.

Theban, relating to Thebes, a city and country in Greece.

